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EXAMINING THE SEQUELAE OF CHILDHOOD TRAUMA
IN FORENSIC MENTAL HEALTH

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Submitted in part fulfilment of the degree of
Doctorate in Clinical Psychology
at the University of Edinburgh

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Table of Contents

DCLINPSYCHOL. DECLARATION OF OWN WORK	4
ACKNOWLEDGEMENTS	6
CHAPTER 1 - SYSTEMATIC REVIEW	9
SYSTEMATIC REVIEW ABSTRACT	10
INTRODUCTION	11
METHOD	16
TABLE 1: ELIGIBILITY CRITERIA FOR THE SYSTEMATIC REVIEW	18
FIGURE 1: SEARCH STRATEGY	20
RESULTS	21
TABLES 2: SUMMARY OF INCLUDED STUDIES	22
TABLE 3: SUMMARY OF QUALITY ASSESSMENT	36
DISCUSSION	47
REFERENCES	54
APPENDIX 1: INSTRUCTIONS FOR AUTHORS	68
APPENDIX 2: SYSTEMATIC REVIEW PROTOCOL	71
APPENDIX 3: EXCLUDED STUDIES	76
APPENDIX 4: SYSTEMATIC REVIEW DATA EXTRACTION FORM	81
APPENDIX 5: QUALITY ASSESSMENT	84
RATIONALE AND AIMS OF THE CURRENT STUDY	89
CHAPTER 2 - EXTENDED METHOD	90
TABLE 1: DEMOGRAPHIC CHARACTERISTICS	98
REFERENCES	100
APPENDIX 1 -ETHICAL AND RESEARCH AND DEVELOPMENT LETTERS	103
APPENDIX 2 -LETTER TO THE RMO	113

APPENDIX 3- PARTICIPANT INFORMATION SHEETS	115
APPENDIX 4 -THE CHILDHOOD TRAUMA QUESTIONNAIRE (CTQ)	123
APPENDIX 5 - RELATIONSHIP SCALES QUESTIONNAIRE (RSQ)	124
APPENDIX 6 -CLINICAL OUTCOMES IN ROUTINE EVALUATION (CORE - OM)	125
APPENDIX 7 - THE HISTORICAL CLINICAL RISK -20 (HCR-20)	126
APPENDIX 8 - SERVICE ENGAGEMENT SCALE (SES)	127
APPENDIX 9 - CONSENT FORM	128
APPENDIX 10 - LETTER TO GP	130
 CHAPTER 3 - JOURNAL ARTICLE	 132
JOURNAL ARTICLE ABSTRACT	133
INTRODUCTION	134
METHODS	139
TABLE 1: DEMOGRAPHIC CHARACTERISTICS	141
RESULTS	146
TABLE 2: SUMMARY STATISTICS FOR ALL VARIABLES MEASURED	147
TABLE 3: PREVALENCE OF CHILDHOOD ABUSE	148
TABLE 4: CORRELATIONS BETWEEN KEY VARIABLES	149
TABLE 5: ANALYSIS TO PREDICT PSYCHOPATHOLOGY	150
TABLE 6: ANALYSIS TO PREDICT RISK OF VIOLENCE (LAST HCR-20)	152
TABLE 7: ANALYSIS TO PREDICT RISK OF VIOLENCE (MEAN HCR-20)	153
TABLE 8: ANALYSIS TO PREDICT RISK OF VIOLENCE (DATIX)	154
DISCUSSION	155
REFERENCES	162
APPENDIX 1: INSTRUCTIONS FOR AUTHORS	172
REFERENCES	175
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Portfolio Thesis Abstract

Introduction

The aims of this thesis were twofold. The first was to systematically review the literature, on the influence of childhood trauma on psychopathology, across a range of forensic settings. The second was to complete an empirical study that examined the relationship between childhood trauma and insecure attachment patterns and psychopathology, risk, and engagement in therapy, in a forensic population.

Method

For the first aim database searches and hand searches of journals assessed against predefined criteria, identified 13 papers that were eligible for review. For the research study, 64 participants from three forensic secure hospitals completed three self-report questionnaires as part of a retrospective cross-sectional design. Data was also obtained from hospital records and clinical staff.

Results

The systematic review identified ten studies that were rated to be of good quality, two that were rated to be of fair quality and one that was rated as weak. Results identified a relationship between childhood trauma and psychopathology, but it is difficult to generalise findings due to the heterogeneity of this population. The research study found both childhood trauma and insecure attachment significantly predicted psychopathology and risk. No associations with engagement in therapy were found, but methodological reasons for this outcome were considered.

Conclusion

The systematic review highlighted that research in the area of childhood trauma and psychopathology in forensic settings is at an early stage, as most studies are small and cross-sectional. It discussed the need to develop further research to improve psychological treatment and reduce recidivism. Recommendations were made in the research study to routinely assess for childhood trauma and consider attachment patterns. Limitations in the design of the study were also acknowledged.

Keywords: attachment, childhood trauma, engagement, forensic patient, mental disorder, prisoner, psychopathology, risk.

CHAPTER 1 - SYSTEMATIC REVIEW

This chapter contains a systematic review, of the research on the effect of childhood trauma on psychopathology, in the forensic population. The systematic review was written for submission to the *Journal of Forensic Psychiatry and Psychology*, therefore formatting and references follow the American Psychological Association (APA) style. This journal's instructions for authors are provided in Appendix 1.

Systematic Review Abstract

A systematic review on the influence of childhood trauma on psychopathology, in the forensic population.

Introduction

This is the first systematic review of research on the influence of childhood trauma on psychopathology, in the forensic population.

Method

Database searches and hand searches of journals assessed against predefined criteria, identified 13 papers that were eligible for review.

Results

Using criteria based on existing guidelines, ten of the studies were rated to be of good quality, two were rated to be of fair quality and one was rated as weak.

Conclusion

Forensic research in this area is at an early stage, as most studies are small and cross-sectional. Results demonstrated a relationship between childhood trauma and psychopathology, but it is difficult to generalise due to the heterogeneity of this population. This review highlights the need to develop further research to improve psychological treatment and reduce recidivism.

Keywords: child abuse, childhood trauma, criminal, forensic patient, mental disorder, prisoner.

Introduction

There is a growing body of evidence that has investigated the influence of childhood trauma such as sexual, physical and emotional abuse and neglect, on the development of a range of psychopathology in adulthood, including: depression, anxiety disorders, posttraumatic stress disorder (PTSD), substance misuse, psychosis and personality disorders (Bentall 2003; Read, van Os, Morrison & Ross, 2005; Read, Fink, Rudegeair, Felitti & Whitfield, 2008). A World Health Organisation (WHO) survey of 51, 945 adults across 21 countries established that childhood adversities account for 28.8% of mental disorders (Kessler *et al.*, 2010). Similarly, a systematic review recently concluded that exposure to child abuse was predictive of psychopathology in adulthood (Severi Martins, de Carvalho Tofoli, Von Werne Baes & Juruena, 2011).

The traumagenic neurodevelopmental model

Child abuse is thought to alter the structure of the developing brain. The effects have been found to be similar to the structural abnormalities seen in many adults with a diagnosis of schizophrenia, such as cerebral atrophy, ventricular enlargements and damage to the hippocampus and amygdala (Read, Perry, Moskowitz & Connolly, 2001). They found traumatised children also experienced dysregulation of the hypothalamic-pituitary-adrenal axis (HPA), which can affect levels of dopamine traditionally attributed to a biological explanation of schizophrenia. These findings led to them developing of the traumagenic neurodevelopmental (TN) model, which integrates neurobiology with psychological and social stressors.

Studies have found similar neurological abnormalities for patients with borderline personality disorder (BPD) (Schore, 2001; Brambilla *et al.*, 2004) and PTSD, in a meta-analysis by Karl *et al.*, (2006). Further evidence of damage has also been identified in a meta-analysis of patients with first episode psychosis, (Vita, De Peri, Silenzi & Dieci 2006) which cannot therefore be attributed to medication or chronicity of symptoms.

Childhood trauma and psychosis

There has historically been a divide between the neuroses and psychoses, with the view that neurotic disorders have a social and emotional aetiology and psychotic disorders have a genetic aetiology (Freeman & Garety 2003). Research has shown that early bio-medical studies exaggerated the heritability of psychotic disorders because they treated it as an axiom rather than a hypothesis that needed to be tested (Marshall, 1990). Bentall (2006) stated that the field of psychosis is undergoing a paradigm shift, with studies increasingly demonstrating that there is a high incidence of childhood trauma in the lives of many people with schizophrenia.

A large-scale prospective study by Bebbington *et al.* (2004) found that the risk of meeting the diagnostic criteria for schizophrenia increased by a factor of 15.5 for individuals who had experienced childhood sexual abuse (CSA) and they stated that this is a greater effect size than any genetic study for psychosis. Similarly Tienari *et al.* (2004) found that children thought to be at biological risk of schizophrenia that were adopted into dysfunctional families, had higher than expected rates of schizophrenia, while those adopted into well functioning families had rates concordant with the general population.

A large prospective study revealed that participants who had been abused in childhood had more severe symptoms of psychosis than those who had not (Janssen et al., 2004). Similarly a cross-sectional survey of 7353 participants, found that CSA was strongly associated with psychosis (Bebbington et al., 2011). A further large-scale study by Bentall, Wickham, Shevlin and Varese (2012) identified an association between CSA and hallucinations. A recent meta-analysis also found that childhood trauma was strongly associated with an increased risk of psychosis (Varese *et al.*, 2012).

Whitfield, Dube, Felitti and Ando (2005) suggest that there is also a direct relationship between the severity of the trauma and the degree of psychopathology, which is known as the *dose effect*. Furthermore, they found that the earlier the onset of abuse, the more symptoms of psychosis. Similar associations have been found by Anda *et al.* (2006) and several other recent large-scale studies (Shevlin, Dorahy & Adamson 2007; Shevlin, Houston, Dorahy & Adamson 2008; Bentall *et al.*, 2012).

Childhood trauma and personality disorders

The association between childhood abuse and certain types of personality disorder was acknowledged in a large-scale prospective study by Spataro, Mullen, Burgess, Wells and Moss (2004). McLean and Gallop (2003) found high rates of CSA in adults with BPD and Herman and van der Kolk (1987) have argued that the association between CSA and BPD is so strong that it should be understood as a post-traumatic disorder.

There is evidence that women who have been sexually abused in their childhood have higher rates of avoidant, dependant and antisocial personality disorder (Johnson, Sheahan & Shard, 2003). Furthermore, high rates of CSA and child physical abuse (CPA) have been identified among adults with antisocial personality disorder (ASPD) (Horowitz, Widom, McLaughlin & White 2001).

Childhood trauma and substance misuse

Individuals with a history of traumatic experiences are more likely to self-medicate with drugs and alcohol, in an attempt to decrease intrusive memories and reduce hyper-arousal (Breslau, Davis & Shultz, 2003; Heide & Solomon 2006). Simpson and Miller (2002) found that the incidence of CSA among female substance abusers was twice the rate of the general population and a relationship has been highlighted between childhood neglect and an increased risk of drug misuse (Dube, Felitti, Dong, Chapman, Giles & Anda, 2003). Similarly, another study found evidence of an association between emotional abuse and physical neglect and individuals who abused substances (Cuomo, Sahiaponne, Di Giannantonio, Mancini & Roy, 2008).

A spectrum of symptoms

There is often a procrustean attempt to fit an individual's symptoms into a single diagnosis. Frame and Morrison (2001) discuss the overlap of diagnostic classifications such as schizophrenia, dissociative disorder and PTSD, with up to 67% of acutely psychotic people studied having co-morbid PTSD. Read *et al.* (2005) highlighted that many patients formerly diagnosed as having psychosis have been reclassified as experiencing PTSD once a trauma history has been identified. It has been proposed that rather than separating childhood trauma sequelae into

separate diagnoses such as PTSD, dissociative disorder, schizophrenia and BPD, they should all instead be viewed as related components of a maladaptive response to abuse (Read, Goodman, Morrison, Ross & Aderhold, 2004). Similarly, Morrison, Frame and Larkin (2003) suggest that PTSD and psychosis are part of a spectrum of responses to child abuse.

Rationale for the review

The evidence base on the effects of childhood trauma on psychopathology in the general population is firmly established (Read *et al.* 2008). However, a review of the Cochrane Database of Systematic Reviews (CDSR) and the Campbell Collaboration website, established that research of this nature with specific reference to forensic populations has not yet been systematically examined. Therefore, the aim of this review is to identify and critically appraise the research literature on childhood trauma and psychopathology in forensic settings, and to synthesise these findings.

The forensic population represents a particularly complex group, with a high level of childhood trauma and psychopathology widely reported. Timmerman and Emmelkamp (2001) identified that 75% of the prisoners and 78% of forensic patients in their study had experienced at least one type of childhood trauma. Similarly, Akyüz, Kugu, Sar and Dogan (2007) found that 41.7% of their prison sample had experienced some form of child abuse.

It is therefore noteworthy that mental illness and personality disorders are overrepresented in prison. A systematic review identified that one in seven prisoners in Western countries had major depression or psychosis and

approximately half of male prisoners and one in five female prisoners had ASPD (Fazel & Danesh, 2002).

Method

Systematic Review Protocol

A systematic review protocol was developed before undertaking the systematic review, using the guidance outlined by the Centre for Reviews and Dissemination (CRD, 2009). This predefined the scope and methods of the review and included the review question, in addition to definitions of the population, childhood trauma and psychopathology. It described the study designs, included the search strategy used, extracted data, quality assessment, data synthesis and plans for dissemination (Appendix 2).

Inclusion and Exclusion Criteria

The wide scope of the review question led to the development of strict inclusion and exclusion criteria in order to reduce heterogeneity. An initial investigation of the literature found that there were a very limited number of studies on mentally disordered patients in forensic hospitals and thus a decision was made to include research on the prison population. Included studies were based on adult participants (age range 18 ≥) without a learning disability, regardless of gender, race or nationality. It was decided to include all peer review journal articles that were published in English, with no date restriction. Searches were limited to English language because of a lack of resources to enable translations.

Studies were only included in the systematic review if the main research question examined the influence of childhood trauma on psychopathology.

Childhood trauma was defined as emotional, physical and sexual abuse, and neglect, that had occurred before the age of 18 (Bernstein *et al.*, 1994). Studies that considered other definitions of childhood adversity such as parental loss or separation were considered beyond the scope of this review.

Psychopathology was defined as any mental illness or personality disorder diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition, text revision (DSM IV-TR)* (APA, 2000) and the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10)* (WHO, 1992). Only studies that used validated measures of these variables were included.

Research studies where the abstract or the full text was unavailable were excluded. Conference abstracts, book chapters, book reviews and unpublished dissertations and theses were also excluded. The inclusion and exclusion criteria for the systematic review has been summarised in Table 1.

Table 1: Eligibility criteria for the systematic review

Inclusion criteria	Exclusion criteria
Forensic inpatients	Learning disability
Prisoners	Abstract unavailable
Adults age 18 years and above	Full text unavailable
Published peer reviewed research articles	Qualitative studies
Full text available	Conference abstracts
Published in English	Book chapters
All years considered	Book reviews
Childhood trauma defined as emotional abuse, physical abuse, sexual abuse and neglect, is the main independent variable.	Unpublished dissertations and theses
Any mental illness or personality disorder, diagnosed according to DSM-IV or ICD-10 criteria, is the main dependent variable.	Non- English language articles
Validated rating scales used	Duplicate record

Search strategy

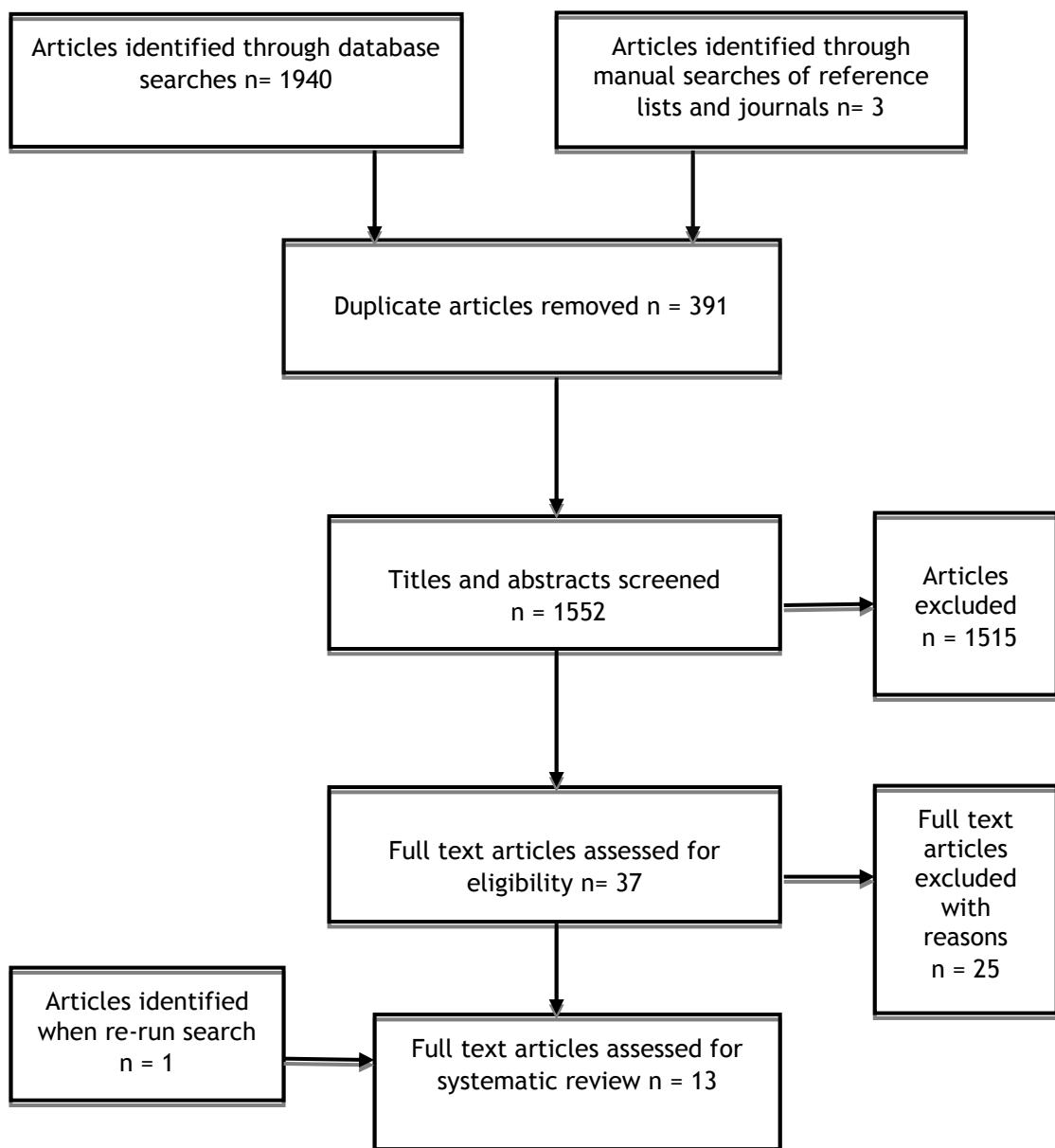
Keyword searches were conducted of the electronic databases, CINAHL, EMBASE, Medline and PsychINFO using variations of the search terms child abuse, childhood trauma, criminal, forensic patient, mental disorder, mental illness, personality disorder, prisoner. All publication years provided by the databases were included up until the date of the search, the 17th November 2012. A repeat search of the electronic databases was conducted at the end of the review period on the 15th July 2013 to ensure that no recent papers were missed.

Titles were screened against the eligibility criteria set out in Table 1 and irrelevant studies were immediately excluded. Abstracts were then screened to exclude further studies that did not meet the inclusion criteria outlined in Table 1. Full text articles were obtained and examined for studies that could not be excluded on the basis of the abstract. Papers that met the eligibility criteria were then included in the systematic review.

A manual search of the reference lists of papers that met eligibility criteria for the systematic review was then conducted to identify any further relevant studies that may have been missed. Finally, the contents pages of the journals that contained the eligible studies were manually searched, to counteract inaccurate database indexing. These journals were: *Substance Use and Misuse*; *Addictive Behaviors*; *Sexual Abuse: a Journal of Research and Treatment*; *Journal of Trauma and Dissociation*; *The Journal of Forensic Psychiatry and Psychology*; *American Journal of Public Health*; *Journal of Clinical Psychiatry*; *The Journal of*

Figure 1 is a flowchart based on the PRISMA statement (Moher, Liberati, Tetzlaff & Altman, 2009), which sets out the search strategy used in the systematic review.

Figure 1: Search Strategy



Results

Excluded studies

Full text articles that narrowly missed the inclusion criteria, with the reasons for this have been summarised in Appendix 3.

Included studies

Thirteen studies conducted in the USA, Germany and Canada, between the years of 1994 and 2013 were selected for the systematic review, based on them meeting the inclusion criteria. A data extraction form was designed following guidance from CRD (2009) to facilitate assessment, see Appendix 4. Ten of the studies were conducted in prisons, one at a pre-trial programme and two were conducted in high secure hospitals. The studies recruited 1,785 participants in total, consisting of 1,327 females and 458 males. Sixty-two of these participants came from high secure hospitals. A summary the key findings of each study are presented in Table 3 below.

Tables 2: Summary of included studies

Study: 1	Tripodi, S.J. & Pettus-Davis, C. (2013). Histories of childhood victimization and subsequent mental health problems, substance use, and sexual victimization for a sample of incarcerated women in the US. <i>International Journal of Law & Psychiatry</i> , 36, 30-40.
Aim	The study examined the prevalence of childhood trauma and its' relationship with adult mental health problems, substance misuse and further sexual victimisation.
Population	N= 125. Female prisoners, USA.
Study design	Cross -sectional and retrospective.
Method	Self -report questionnaires: demographics; the Substance Abuse Module (SAM) (Cottler, Robins & Helzer, 1989); the Addiction Severity Index (ASI) (McLellan <i>et al.</i> , 1992); the Childhood Trauma Questionnaire (CTQ) (Bernstein <i>et al.</i> , 1994); The National Violence Against Women Survey (Tjaden & Thoennes, 2000); the Abuse Behavior Index (ABI) (Zinc, Klesges, Levin & Putnam, 2007).
Analysis and results	Means, standard deviations and descriptives. Binary logistic regression models.
	Participants, who experienced both CSA and CPA, were more likely to be admitted to a psychiatric hospital, attempt suicide or be sexually victimised in the year preceding prison. Participants with a history of CPA and both CSA and CPA, as children were more likely to have a substance disorder.
Limitations	Use of retrospective self-report measures. Did not know if participants who refused to participate had differing levels of victimisation, mental illness or substance misuse problems.
Generalisability	Not thought to be generalisable to female prisoners across the United States of American.

Study: 2	Asberg, K. & Renk, K. (2012). Substance use coping as a mediator of the relationship between trauma symptoms and substance use consequences among incarcerated females with childhood sexual abuse histories. <i>Substance Use & Misuse</i> , 47, p. 799-808.
Aim	The study examined substance use coping, as a mediator between trauma symptoms and substance use consequences in a sample of female prisoners.
Population	N= 111. Female prisoners, USA.
Study design	Cross -sectional, within group comparisons.
Method	Self -report questionnaires: demographics; a modified version of the Child Sexual Abuse Index (CSAI) (Jonzon & Lindland, 2006); Trauma Symptom Checklist (TSC-40) (Briere & Runtz, 1989); Drinking Motives Measure (DMM) (Cooper, Russell, Skinner & Windle, 1992); Inventory of Drug Use Consequences (InDUC-R6)(Tonigan & Miller, 2002)
Analysis and results	Means, standard deviations and descriptives. Correlations and regression analyses.
	Trauma symptoms predicted the severity of substance use consequences, with this relationship being mediated by avoidance coping e.g. substance use.
Limitations	Use of retrospective self-report measures. Did not ask where the participants were in relation to time served.
Generalisability	May generalise well to other women who misuse substances, but not community samples of CSA survivors.

Study: 3	Swogger, M.T., Conner, K.R., Walsh, Z. & Maisto, S.A. (2011). Childhood abuse and harmful substance use among criminal offenders. <i>Addictive Behaviors</i> 36, 1205-1212.
Aim	The study examined the associations between CSA, CPA and symptoms of substance use disorders, substance use consequences and gender. Exploratory analysis conducted on the relationship between substance use and depression, Generalised Anxiety Disorder (GAD) and PTSD.
Population	N = 219, 162 males and 57 females. Prisoners, USA.
Study design	Cross -sectional, within and between group comparisons.
Method	Self -report questionnaires: demographics; Adverse Childhood Experiences (Dube <i>et al.</i> , 2003); Psychiatric Diagnostic Questionnaire (PDSQ) (Zimmerman & Matia, 2001a); Short Inventory of Problems-Alcohol and Drug Version (SIP-AD) (Tonigan & Miller, 2002); reported frequency of use from a list of drugs.
Analysis and results	Means, standard deviations and descriptives. Correlations and regression analyses.
	CPA was associated with alcohol misuse and CSA was associated with drug misuse. Both types of abuse were associated with substance use consequences. No gender specific interactions were identified. Depression and GAD partially mediated child abuse and substance use consequences.
Limitations	Use of retrospective self-report measures. Use of a small number of questions to assess child abuse may have reduced sensitivity and statistical power.
Generalisability	Not generalisable to non - offender populations.

Study: 4	Booker Loper, A., Mahmoodzadegan, N. & Warren, J.I. (2008). Childhood Maltreatment and Cluster B Personality Pathology in Female Serious Offenders. <i>Sexual Abuse: a Journal of Research and Treatment</i> , 20, 2, 139-160.
Aim	The aim was to establish whether abuse histories could distinguish between participants with and without a cluster B personality disorder. The study also examined difference abuse patterns between male and female carers.
Population	N = 142. Female prisoners, USA.
Study design	Cross -sectional, within and between group comparisons.
Method	Self -report questionnaires: demographics; Physical Maltreatment Scale (PHYS) and Psychological Maltreatment Scale (PMS) (Briere & Runtz, 1988); Assessing Environment III (Berger & Knutson, 1984); Sexual Maltreatment Scale, adapted from Sexual Experience Questionnaire (Finklehor, 1984). Structured interview: The Structured Clinical Interview for DSM-III-TR Personality Disorders (SCID-II) (First, Spitzer, Gibbon & Williams, 1995).
Analysis and results	Means, standard deviations and descriptives. Factor analyses, chi-square analyses, multivariate analyses.
	The cluster B group had higher levels and a greater range of parental physical and psychological abuse, but there was no difference in the levels of CSA between the groups. The participants reported more physical and psychological abuse from female carers.
Limitations	Use of retrospective self-report measures.
Generalisability	The research may not generalise to the majority of female prisoners in lower security prisons.

Study: 5	Roe-Sepowitz, D., Bedard, L.E. & Pate, K. (2007). The impact of child abuse on dissociative symptoms: A study of incarcerated women. <i>Journal of Trauma and Dissociation</i> , 8, 3, 7-26.
Aim	The aim was to examine if dissociative symptoms were higher for participants with a history of child abuse, than those without. It also examined if participants who engage in high- risk behaviour had higher rates of dissociative symptoms.
Population	N = 192. Female prisoners, USA.
Study design	Cross -sectional, within and between group comparisons.
Method	Self -report questionnaires: Child Maltreatment Interview Schedule (CMIS) (Briere, 1992); Trauma Symptom Inventory (TSI) (Briere, 1995); a survey regarding demographics, family history, health, substance misuse, and contact with the justice system.
Analysis and results	Means, standard deviations and descriptives. Chi-squared analyses, logistic regression analyses.
	47% reported a clinically significant level of dissociation. The dissociative group had higher rates of child abuse. Participants who engaged in risky behaviour did not have higher levels of dissociation.
Limitations	The effect of imprisonment on potential trauma symptoms. The participants were taken from a psycho-education group on trauma, which may draw a more traumatised population.
Generalisability	Not reported.

Study: 6	Spitzer, C., Chevalier, C., Gillner, M., Freyberger, H.J. & Barnow, S. (2006). Complex posttraumatic stress disorder and child maltreatment in forensic inpatients. <i>The Journal of Forensic Psychiatry and Psychology</i> , 17, 2, 204-216.
Aim	The study examined the prevalence of child maltreatment and complex PTSD and hypothesised that those with complex PTSD would have significantly more experience of child abuse than those without. Clinical and forensic correlates of complex PTSD were also examined.
Population	N = 32, 28 males and 4 females. A maximum-security hospital, Germany.
Study design	Cross-sectional, within and between group comparisons.
Method	Structured interview: Structured Interview for Disorders of Extreme Stress (SIDES) (Pelcovitz <i>et al.</i> , 1997). Self-report questionnaire: Childhood Trauma Questionnaire (CTQ) (Bernstein <i>et al.</i> , 2003). An expert rating of the presence of child abuse and forensic and clinical information was taken from psychiatric records.
Analysis and results	Means, standard deviations and descriptives. Chi-squared analyses, non-parametric Mann-Whitney U-test.
	44% met diagnostic criteria for lifetime PTSD. Participants with complex PTSD experienced significantly more CPA, than those without complex PTSD. Participants with complex PTSD had a history of significantly more drug and alcohol misuse, than those without.
Limitations	Small sample size, not able to assess gender differences with sufficient power.
Generalisability	The sample was not representative of a general forensic inpatient population and therefore it is not generalisable.

Study: 7	Messina, N. & Grella, C. (2006). Childhood trauma and women's health outcomes in a Californian prison population. American Journal of Public Health, 96, 10, 1842 - 1848.
Aim	The study examined the prevalence of childhood trauma in female prisoners in substance abuse treatment. It also assessed the relationship between cumulative childhood trauma and adult physical and mental health problems.
Population	N = 491. Female prisoners, USA.
Study design	Cross -sectional, within group comparisons.
Method	Self -report questionnaires: Life Stressor Checklist- Revised (LSC-R) (Wolfe & Kimerling, 1997); Trauma Symptom Checklist - 40 (TSC-40) (Briere, 1996); The Brief Symptom Inventory (BSI) Global Severity Index (Derogatis & Melisaratos, 1983); Self- report of 18 health problems or health related behaviours.
Analysis and results	Means, standard deviations and descriptives. Chi-squared analyses, t tests, logistic regression analyses.
	The impact of childhood trauma on health is strong and cumulative e.g. significantly and positively related to the 5 mental health variables and to having problems with alcohol.
Limitations	Use of retrospective, self-report measures.
Generalisability	Findings were not thought to be generalisable to other female prison populations.

Study: 8	Driessen, M., Schroeder, T., Widmann, B., von Schonfeld, C-E. & Schneider, F. (2006). Childhood trauma, psychiatric disorders, and criminal behavior in prisoners in Germany: A comparative study in incarcerated women and men. <i>Journal of Clinical Psychiatry</i> , 67, 10, 1486-1492.
Aim	The study examined the prevalence of childhood trauma in prisoners and the association of this with mental disorders and criminal behaviour.
Population	N = 143, 67 females and 76 males. Prisoners, Germany.
Study design	Cross -sectional, within group comparisons.
Method	Self -report questionnaires: demographics; survey of legal and medical history; Childhood Trauma Questionnaire (CTQ) (Bernstein & Fink, 1998); Symptom Checklist Revised (SCL-90-R) (Derogatis, 1986). Structured interview: Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition. (SCID-I/P) (First, Spitzer, Robert, Gibbon, & Williams, 2002); Structured Clinical Interview for DSM-IV Axis II Personality Disorders, (SCID-II) (First, Gibbon, Spitzer, Williams, Benjamin L.S., 1997); Axis V Global Assessment of Functioning Scale (GAF) (DSM -IV-TR, 2000); General Severity Scale (Cooper, 1978).
Analysis and results	Means, standard deviations and descriptives. Chi-squared tests, t tests, univariate analyses, ANCOVA.
	At least one childhood trauma was found in 50.4% of the participants. The number of co morbid Axis I and Axis II disorders were significantly associated with the severity of child abuse, indicating a dose response. There was a higher rate of Axis I and II disorders in women.
Limitations	Use of retrospective, self-report measures.
Generalisability	The small sample makes it difficult to generalise to the wider prison population.

Study: 9	Johnson, R.J., Ross, M.W., Taylor, W.C., Williams, M.L., Carvajal, R.I., Peters, R.J. (2005). A history of drug use and childhood sexual abuse among incarcerated males in a county jail. Substance use and Misuse, 40, 211-229.
Aim	The study examined the prevalence of CSA and the association between CSA and substance use among male prisoners.
Population	N = 100. Male prisoners, USA.
Study design	Cross -sectional, within group comparisons.
Method	Self -report questionnaires: demographics; National Health and Social Life Survey (NHSLs) (Laumann, Gagnon, Michael, and Michaels, 1994); offending history was obtained from prison records.
Analysis and results	Means, standard deviations and descriptives. Chi-squared tests, t tests, ANOVA, logistic regression analyses.
	59% reported CSA. There was a statistically significant relationship between CSA and drug use, with those who had experienced CSA reporting up to 30% more drug use.
Limitations	Use of retrospective, self-report measures.
Generalisability	The results were a small convenience sample and were not thought to be representative of the male survivors of child sexual abuse.

Study: 10	Dietrich, A. (2003). Characteristics of child maltreatment, psychological dissociation, and somatoform dissociation of Canadian inmates. <i>Journal of Trauma and Dissociation</i> , 4, 1, 81-100.
Aim	The study examined whether childhood trauma was related to psychological dissociation, somatoform dissociation and violent and/or sexual offending in adult prisoners.
Population	N = 93, 62 males, 31 females. Prisoners, Canada.
Study design	Cross -sectional, between group comparisons.
Method	Self -report questionnaires: demographics; Child Maltreatment Interview Schedule-Short Form (CMIS-SF) (Briere, 1992); Detailed Assessment of Posttraumatic States (DAPS) (Briere, 1998, 2001); Multiscale Dissociation Inventory (MDI) (Briere, 2002); Somatoform Dissociation Questionnaire (SDQ-2) (Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1996); Adult Victimization Survey, (CMIS-SF), a modified version of Briere (1992).
Analysis and results	Means, standard deviations and descriptives. Correlational and group comparison analyses, regression analyses, chi-squared tests.
	Females reported more CSA than men. The participants had a higher rate of traumatic stress and dissociation and a lower rate of somatoform dissociation than normative samples. Participants with CSA histories had higher SDQ-20 scores than those without. CSA that involved penetration predicted MDI dissociation.
Limitations	The small sample and absence of a comparison group of prisoners who do not have a history of child abuse.
Generalisability	The high rate of violent offending in the sample created doubt about the generalisability to other offenders.

Study: 11	Cima, M.M., Mercelbach, H., Klien, B., Shellbach-Matties, R.M.D. & Kremer, K. (2001). Frontal lobe dysfunctions, dissociation, and trauma self-reports in forensic psychiatric patients. <i>The Journal of Nervous and mental Disease</i> , 189, 3, 188-190.
Aim	The study examined to what extent dissociative symptoms were associated with childhood trauma and/or frontal lobe functioning.
Population	N = 30 males. Forensic inpatients, Germany.
Study design	Cross -sectional, within group comparisons.
Method	Self -report questionnaires: demographics; Dissociative Experiences Scales (DES) (Bernstein & Putman, 1986); Childhood Trauma Questionnaire (CTQ) (Bernstein <i>et al.</i> , 1994); Creative Experience Questionnaire (CEQ) (Merckelbach, Rassin & Muris, 2000). Neuropsychological test: Behavioural assessment of the dysexecutive syndrome (BADS) (Wilson, Alderman, Burgess, Emslie & Evans, 1996). Review of patients' records to independently assess childhood trauma.
Analysis and results	Means, standard deviations and descriptives. Pearson correlation analyses.
	A high level of childhood trauma and dissociation was found. Childhood trauma was not associated with dissociative symptoms. There was no evidence to suggest fantasy proneness, contributed to reports of childhood trauma or dissociative symptoms. Poor frontal functioning was associated with dissociative symptoms. There was a positive correlation between self -reports of trauma and frontal lobe functioning.
Limitations	Not reported.
Generalisability	Not reported.

Study: 12	Zlotnick, C. (1997). Posttraumatic stress disorder (PTSD), PTSD comorbidity and childhood abuse among incarcerated women. <i>The Journal of Nervous and Mental Disease</i> , 185, 12, 761-763.
Aim	The study examined the frequency and types of trauma experienced by female prisoners, the frequency of PTSD and the relationship between child abuse and related features of trauma.
Population	N = 85. Female prisoners, USA.
Study design	Cross -sectional, within group comparisons.
Method	Self -report questionnaires: demographics; Clinician Administered Assessment Interview for Adults (Resnick, Kilpatrick, Dansky, Saunders & Best, 1993). Structured Interviews: Structured Clinical Interview for DSM-IV Axis I Disorders, Non-patient Edition (SCID-NP-V) (First, Gibbon & Williams, 1996); Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) (First <i>et al.</i> , 1997); Structured Interview for Measurement of Disorders of Extreme Stress (SIDES) (Pelcovitz <i>et al.</i> , 1997).
Analysis and results	Means, standard deviations and descriptives. Logistic regression analyses, chi -squared tests.
	65.9% reported a history of CSA or CPA before the age of 13. Participants with current PTSD had a significantly higher rate of child abuse than those without PTSD. Participants that reported child abuse had significantly higher rates of dissociation, somatisation and affect dysregulation.
Limitations	Use of retrospective, self-report measures.
Generalisability	It was unclear whether findings would generalise to other female prisoners, as rates of psychopathology were higher. It was thought this might be due to differences in the population or methodology.

Study: 13	Green, A. H. & Kaplan, M.S. (1994). Psychiatric impairment and childhood victimization experiences in female child molesters. Journal of the American Academy of Child and Adolescent Psychiatry, 33, 7, 954-961.
Aim	The study aimed to compare the incidence of childhood trauma and psychopathology in female child sex offenders, with females convicted of non-sexual offences.
Population	N = 22. 11 female prisoners convicted of child sexual abuse, 11 female prisoners, convicted of non-sexual offences, USA.
Study design	Cross -sectional, control group comparison.
Method	Self -report questionnaires: demographics; Sexual History Questionnaire (Wyatt, 1982). Structured Interviews: Structured Clinical Interview for DSM-III-R, Outpatient Version (SCID-OP) (Spitzer, Williams, Gibbon & First, 1992); Structured Clinician Interview for DSM-III-R Axis II Disorders, (SCID-II) (Spitzer, Williams, Gibbon & First, 1990); the Harvard-Upjohn Post-Traumatic Stress Disorder (PTSD) Interview. Review of prison records for offence history. In-depth interview to obtain a psychodynamic history.
Analysis and results	Means, standard deviations and descriptives. Chi-squared tests, t tests.
	Both groups had high levels of major depression, substance abuse and PTSD. The child sex offenders had a higher incidence of child physical and sexual within they family, than the control group. This abuse was more severe and more frequently associated with PTSD. The child sex offenders had more psychiatric disorders, than the control group.
Limitations	P -values not obtained because of the small sample size.
Generalisability	Not reported.

Quality assessment

A quality assessment tool was created to enable the evaluation of each study that met the inclusion criteria for systematic review, see Appendix 5. It was developed based on the quality assessment criteria adopted by the both the Scottish Intercollegiate Guidelines Network as part of their guidelines for systematic reviews (SIGN, 2008) and also the CRD quality assessment criteria (CRD, 2009).

Studies were rated using eight items across six quality criteria: research question; population; design and methods; statistical analyses; quality of reporting; and generalisability. Each item was scored as follows: *well covered* = 3; *adequately addressed* = 2; *poorly addressed* = 1; *not addressed/not reported/not applicable* = 0. Total numerical scores were converted into percentages and categorised as follows *Good* $\geq 70\%$, *Fair* $\geq 50\%$, *Weak* $< 50\%$.

Two separate researchers independently rated each study. Inter-rater agreement was good, (Cohen's Kappa, 0.67). Any differences between raters was discussed and amended where appropriate. A summary of the ratings and the overall assessment of each study are set out in Table 4 below.

Table 3: Summary of Quality Assessment

Study	Research Question	Population	Design & Methods	Statistical Analyses	Quality of Reporting	Generalisability	Total Score	Percentage & Category
1. Tripodi & Pettus-Davis (2013)	3	2+3	3+3	3	3	2	22	91.6% - Good
2. Asberg & Renk (2012)	3	1+1	3+3	3	3	2	19	79.2% - Good
3. Swogger et al. (2011)	3	0+3	3+2	3	3	2	19	79.2 % - Good
4. Booker Loper et al. (2008)	3	3+2	3+3	3	3	2	22	91.6% - Good
5. Roe- Sepowitz et al. (2007)	3	1+0	3+2	3	3	0	15	66.6% - Fair
6. Spitzer <i>et al.</i> (2006)	3	1+3	3+3	3	3	1	20	83.3% - Good
7. Messina & Grella (2006)	3	1+3	3+3	3	3	1	20	83.3% - Good
8. Driessen <i>et al.</i> (2006)	3	3+2	3+3	3	3	1	21	87.5% - Good
9. Johnson <i>et al.</i> (2005)	3	1+3	3+3	3	3	1	20	83.3% - Good
10. Dietrich (2003)	3	3+1	3+3	3	3	1	17	70.8% - Good
11. Cima <i>et al.</i> (2001)	1	0+0	3+3	2	2	0	11	45 .8% - Weak
12. Zlotnick (1997)	2	3+3	3+3	3	3	3	23	95.8% - Good
13. Green & Kaplan (1994)	3	0 +3	2+2	1	2	0	13	54.2% - Fair

Synthesis of results

Main findings

Prevalence rates of child abuse varied across the 13 studies reviewed and the range of different measures employed made comparisons difficult. Tripodi and Pettus-Davis (2013) reported 32.5% of their participants were both physically and sexually abused, 20.3% were physically abused but not sexually abused and 11.4% were sexually abused but not physically abused. Asberg and Renk (2012) specifically recruited women with a history of CSA which comprised of 66% of an overall sample of N=169. Swogger *et al.* (2011) established in their research that 58.6% of men and 64.9% women reported CPA and 15.4% of men and 49.1% of women reported CSA. Booker-Loper *et al.* (2008) found overall levels of verbal maltreatment of 92.3%, physical maltreatment of 77.5% and sexual maltreatment of 66.2%. Roe-Sepowitz *et al.* (2007) reported 87% CPA, 82% CSA and 27% emotional abuse. Spitzer *et al.* (2006) identified 69% CPA, 69% emotional abuse, 47% CSA and 41% child neglect. Driessen *et al.* (2006) reported childhood abuse in ranges e.g. 23.7% severe emotional abuse, 24.5% severe physical abuse, 33.1% severe emotional neglect and 5% severe physical neglect. Moderate to severe childhood trauma in at least one category was found in 50.4% of participants. Messina and Grella (2006) sample comprised of 34.2% emotional abuse and neglect, 14.5% physical neglect, 30.6% CPA and 45.1% CSA. Johnson *et al.* (2005) found 59% CSA in their research. Dietrich (2003) identified 69.9% psychological abuse, 61% CSA and 60% CPA. Cima *et al.* (2001) did not report percentages of childhood trauma. Zlotnick (1997) identified 40% CSA and 55% CPA. Kaplan and Green (1994) reported that 73% of sex offenders and 45% of non-sex offenders had

a history of CPA. 82% of sex offenders and 45% of non- sex offenders had a history of CSA.

While the inclusion criteria of the review specified the categories of CSA, CPA emotional abuse and emotional and physical neglect, some of the studies reviewed had a wider definition of childhood trauma. For example Messina and Grella (2006) also reported family violence (47.6%), parental separation/divorce (43.7%), having an incarcerated family member (33.3%) and experiencing an out-of-home placement (19.9%). Driessen (2003) also reported the prevalence in their sample of parental drug and alcohol abuse (68.8%), being a witness to domestic abuse (60.2%) and the loss of a parent (28%).

Three of the studies were primarily concerned with childhood trauma and substance abuse. Asberg and Renk (2012) found that trauma symptoms correlated significantly and positively with an increase in problems with drugs and alcohol, with the relationship mediated by avoidant coping, such as substance misuse. Swogger *et al.* (2011) identified a relationship between physical abuse and alcohol misuse, and also a relationship between sexual abuse and drug misuse. Both forms of childhood abuse were associated with substance abuse consequences, but were partially mediated by the presence of depression and GAD. Johnson *et al.* (2005) reported that 59% of their participants had a history of CSA and they were over three times more likely to use drugs.

Two studies examined substance misuse among other variables. Tripodi and Pettus-Davis (2013) established that participants who were either physically abused, or both physically and sexually abused as children, were significantly

more likely to have substance misuse problems. Messina and Grella (2006) found that child abuse was significantly and positively associated with having an alcohol problem, but they did not find the same relationship with intravenous drug abuse.

Four studies looked at the impact of different types of child abuse on dissociation (Roe-Sepowitz *et al.*, 2007; Dietrich, 2003; Zlotnick, 1997; Cima *et al.*, 2001).

Roe-Sepowitz *et al.* (2007) identified a significant positive relationship between participants who had a history of CSA or CPA and dissociation. Dietrich (2003) found that participants who had reported CSA had a higher rate of both dissociation and somatoform dissociation than those without. Similarly, Zlotnick (1997) established that participants who had experienced childhood abuse had significantly higher rates of dissociation. However Cima *et al.* (2001) did not find a relationship between childhood trauma and dissociation, but did report an association between childhood trauma and problems with frontal lobe functioning.

Two studies examined the relationship between child maltreatment and PTSD (Spitzer *et al.*, 2006; Zlotnick, 1997). Spitzer *et al.* (2006) found that participants with complex PTSD had experienced more CPA than those without, in addition to reporting a significant association between complex PTSD and substance misuse. Zlotnick (1997) identified that participants with a history of CSA or CPA had significantly higher rates of PTSD than those without.

Booker Loper *et al.* (2008) were primarily interested in examining whether abuse histories could distinguish between participants with and without a cluster B personality disorder. The cluster B group had higher rates of childhood physical and emotional abuse, but not sexual abuse.

Four studies examined the relationship between childhood trauma and a range of psychiatric disorders (Driessen *et al.*, 2006; Green & Kaplan, 1994; Tripodi & Pettus-Davis, 2013; Messina & Grella, 2006). Driessen *et al.* (2006) identified a significant relationship between the severity of childhood abuse and the number of comorbid disorders, indicating a dose response. Green and Kaplan (1994) reported that child sex offenders had a higher rate of CSA and CPA than non-sex offenders, and that the abuse they had experienced was more severe and more likely to be associated with PTSD and other psychiatric disorders. Tripodi and Pettus-Davis (2013) highlighted that participants who had a history of both CSA and CPA were more likely to be admitted to a psychiatric hospital. Similarly, Messina and Grella (2006) found that childhood trauma was significantly and positively associated with participants receiving psychiatric medication and mental health treatment.

Research question

All thirteen studies had a clear research question that set out the aim(s) of the study, which was developed from previous research on childhood trauma and psychopathology. Ten of the studies were assigned a score of 'well covered' for this quality category. An exception was Cima *et al.* (2001), whose summary of background information was limited and thus their paper was assigned a score of 'poorly addressed' for this quality indicator. The paper by Zlotnick (1997) was assigned a score of 'adequately addressed' for similar reasons.

Population

Seven of the studies recruited female prisoners (Tripodi & Pettus-Davis; Asberg & Renk 2012; Booker Loper *et al.*, 2008; Roe-Sepowitz *et al.*, 2007; Messina & Grella

2006; Zlotnick 1997; Green & Kaplan, 1994). Only one study (Johnson *et al.*, 2005) included a male sample of prisoners. All of the studies that included female only samples were conducted in the USA. Of those including mixed samples, Swogger *et al.* (2011) recruited male and female participants from a pre-trial supervision programme in the USA. Driessen *et al.* (2006) and Dietrich (2003) had a mixed sample of prisoners from the Germany and Canada respectively. Spitzer *et al.* (2006) and Cima *et al.* (2001) both recruited participants in German forensic hospitals. Spitzer *et al.* (2006) had a mixed population, while Cima *et al.* (2001) only recruited males. Sample sizes varied widely between 22 (Green & Kaplan, 1994) and 491 (Messina & Grella, 2006).

Four of the studies provided evidence that their participants were a representative sample (Booker Loper *et al.*, 2008; Driessen *et al.*, 2006; Dietrich, 2003; Zlotnick 1997), which led to them being rated as ‘well covered’ for this quality category. One study (Tripodi & Pettus-Davis, 2013) was rated as ‘adequately covered’ as they used a random sample of prisoners, but acknowledged that it was not possible to ascertain if those who declined to participate were similar.

Five studies were rated as having ‘poorly addressed’ recruiting a representative sample for this quality indicator (Ashberg & Renk, 2012; Roe-Sepowitz *et al.*, 2007; Messina & Grella, 2006; Spitzer *et al.*, 2006; Johnson *et al.*, 2005). Ashberg and Renk (2012) described their participants who were serving less than a one-year sentence as more representative of females in the USA criminal justice system, but acknowledged that this was likely to exclude those with a history of violence. They were also selected from a larger sample because of their history of

CSA. Roe-Sepowitz *et al.* (2007) highlighted that all of their participants attended group therapy for trauma and may therefore have had a more severe trauma history than the wider prison population. Similarly, Messina and Grella (2006) recruited participants from a prison substance abuse programme, who may have differed from the general prison population. Spitzer *et al.* (2006) excluded participants with a primary substance disorder or psychotic disorder and reported that this was not representative of the general forensic population. Rates of violent offending and personality disorder were also lower in the Spitzer *et al.* (2006) study than those reported in other forensic studies, suggesting that their sample may not have been representative of this population. Johnson *et al.* (2005) acknowledged that they recruited a convenience sample of participants that cannot be seen as representative. Three studies (Swogger *et al.*, 2011; Cima *et al.*, 2001; Green & Kaplan, 1994) did not report at all on how representative their sample of participants was.

Seven studies (Tripodi & Pettus-Davis, 2013; Swogger *et al.*, 2011; Spitzer *et al.*, 2006; Messina & Grella, 2006; Johnson *et al.*, 2005; Zlotnick, 1997; Green & Kaplan, 1994) gave a detailed account of their recruitment process and how many participants declined or withdrew, and were thus rated as 'well covered' for this quality category. Two studies were rated as 'adequately' addressing their recruitment process (Booker Loper *et al.*, 2008; Driessen *et al.*, 2006). Booker Loper *et al.* (2008) did not specify how a sample of 203 participants was selected from a larger study. Driessen *et al.* (2006) give a detailed account of the numbers of participants in the study but there was no information about the recruitment process. Two studies (Ashberg & Renk, 2012; Dietrich, 2003) received a rating of 'poorly addressed' for this quality indicator, as there was very limited information

about how participants were recruited and no information about the number who had withdrawn or been excluded. Two studies (Roe-Sepowitz *et al.*, 2007; Cima *et al.*, 2001) did not report any details of this process at all.

Design and Method

All of the studies adopted a cross-sectional design. Only one study (Green & Kaplan, 1994) used a control group comparison of females convicted of non-sex offences. Dietrich (2003) made comparisons between males and females in the same sample. Four studies (Swogger *et al.*, 2011; Booker Loper *et al.*, 2008; Roe-Sepowitz *et al.*, 2007; Spitzer *et al.*, 2006) employed both within- and between-group comparisons. The remainder of the studies adopted within-group comparisons (Tripodi & Pettus-Davis, 2013; Ashberg & Renk, 2012; Messina & Grella, 2006; Driessen, 2006; Johnson *et al.* 2005; Cima *et al.* 2001; Zlotnick, 1997).

All of the studies used a range of self-report questionnaires, although structured clinical interviews were also employed in six studies to primarily diagnose mental disorders (Swogger *et al.*, 2011; Booker Loper *et al.*, 2008; Spitzer *et al.*, 2006; Driessen *et al.*, 2006; Zlotnick, 1997; Green & Kaplan, 1994), which increased confidence in the outcomes. Cima *et al.* (2001) was the only study to use a neuropsychological test to assess frontal lobe functioning.

For twelve of the papers, definition and measurement of the variables under investigation were 'well covered', (Tripodi & Pettus-Davis, 2013; Ashberg & Renk, 2012; Swogger *et al.*, 2011; Booker Loper *et al.* 2008; Roe-Sepowitz *et al.* 2007; Spitzer *et al.*, 2006; Messina & Grella, 2006; Driessen *et al.* 2006; Johnson *et al.*,

2005; Dietrich, 2003; Cima *et al.* 2001; Zlotnick, 1997). Only the Green and Kaplan (1994) study was rated as 'adequately addressed' for this quality category because they provided a limited description of how they measured a 'psychodynamic profile'.

Ten of the studies were highly rated for the validity and reliability of their measures, (Tripodi & Pettus-Davis, 2013; Ashberg & Renk, 2012; Booker Loper *et al.*, 2008; Spitzer *et al.*, 2006; Messina & Grella, 2006; Driessen *et al.*, 2006; Johnson *et al.*, 2005; Dietrich, 2003; Cima *et al.*, 2001; Zlotnick, 1997) but this is perhaps unsurprising as one of the inclusion criteria was that standardised measures were used. The remaining three studies were deemed to 'adequately address' this quality indicator. This was because Swogger *et al.* (2011) and Roe-Sepowitz *et al.* (2007) used a more limited range of measures. It was also difficult to understand how the 'psychodynamic profile' was rated in Green and Kaplan (1994).

Statistical Analyses

A range of statistical analyses was used in the thirteen studies selected for review, full details of these are provided in Table 3. The reporting of the statistics used was 'well covered' in eleven of the studies. (Tripodi & Pettus-Davis, 2013; Ashberg & Renk, 2012; Swogger *et al.*, 2011; Booker Loper *et al.*, 2008; Roe-Sepowitz *et al.*, 2007; Spitzer *et al.*, 2006; Messina & Grella, 2006; Driessen *et al.*, 2006; Johnson *et al.*, 2005; Dietrich, 2003; Zlotnick, 1997). Cima *et al.* (2001) were only able to employ simple correlational statistics in their study due to the small sample size, which resulted in a score of 'adequately addressed' for this quality category. Similarly, Green and Kaplan (1994) were unable to calculate an

alpha value of probability due to the small number of participants in their study, which resulted in a score of 'poorly addressed' for this quality indicator.

Quality of Reporting

The quality of reporting was assessed as being 'well covered' for eleven of the studies. (Tripodi & Pettus-Davis, 2013; Ashberg & Renk, 2012; Swogger *et al.*, 2011; Booker Loper *et al.*, 2008; Roe-Sepowitz *et al.*, 2007; Spitzer *et al.*, 2006; Messina & Grella, 2006; Driessen *et al.*, 2006; Johnson *et al.*, 2005; Dietrich, 2003; Zlotnick, 1997). Cima *et al.* (2001) received a rating of 'adequately addressed' for this quality category because of the limited overview of trauma literature discussed in their introduction. The Green and Kaplan (1994) study also received a rating of 'adequately addressed' for this quality indicator due to a lack of clarity in their description of the assessment of participants' 'psychodynamic profile'. There was some variation in the length of the articles, but this appeared to be related to the word count required for different journals.

Generalisability

Only Zlotnick (1997) received a score of 'well covered' in terms of the generalisability of the study findings, as she acknowledged the similarities and differences between her sample and other prison populations. Five studies received a rating of 'adequately addressed' for this quality category (Tripodi & Pettus-Davis, 2013; Ashberg & Renk, 2012; Swogger *et al.*, 2011; Booker Loper *et al.*, 2008; Messina & Grella, 2006). Tripodi and Pettus-Davis (2013) stated that their study could not be generalised to the wider female prison population in the USA. Ashberg and Renk (2012) thought that their findings would generalise well to other substance-abusing women in treatment, but were hesitant about

generalising them to community survivors of childhood sexual abuse. Swogger *et al.* (2011) urged caution about generalising their finding to non-offender groups. Booker Loper *et al.* (2008) expressed concerns about generalising their findings to the large numbers of females in low secure prisons. Similarly, Messina and Grella (2006) were cautious of generalising their findings beyond prison-based treatment in California.

Four studies received a score of 'poorly addressed' for the quality of the generalisability of their findings (Spitzer *et al.*, 2006; Driessen *et al.*, 2006; Johnson *et al.*, 2005; Dietrich, 2003). Spitzer *et al.* (2006) acknowledged, as previously stated, that their sample was not representative of forensic inpatients. Driessen *et al.* (2006) stated that their small sample size made it difficult to generalise their findings at all. Similarly, Johnson *et al.*, (2005) reported that their small convenience sample from one prison could not be generalised, or be thought to represent the experience of male survivors of CSA. Dietrich (2003) recognised that her sample had high rates of violence and was unclear how they compared to other prison populations. Three studies (Roe-Sepowitz *et al.*, 2007; Cima *et al.*, 2001 and Green & Kaplan, 1994) did not report on generalisability at all.

Overall assessment of quality

In terms of overall quality, ten studies (Tripodi & Pettus-Davis 2013; Asberg & Renk, 2012; Swogger *et al.*, 2011; Booker Loper *et al.*, 2008; Spitzer *et al.*, 2006; Driessen *et al.*, 2006; Messina & Grella, 2006; Johnson *et al.*, 2005; Dietrich, 2003 and Zlotnick, 1997) were assessed to be of a good quality. Two studies (Roe-Sepowitz *et al.*, 2006; Green & Kaplan) were assessed to be of fair quality overall.

The only study reviewed that was assessed to be weak overall was Cima *et al.* (2001).

Discussion

This systematic review of research on childhood trauma and psychopathology in the forensic population revealed an absence of large-scale prospective studies in the existing literature. All thirteen studies recruited convenience samples and were retrospective and cross-sectional in design. Messina and Grella (2006) had the largest sample of 491 participants, but three studies (Spitzer *et al.*, 2006; Cima *et al.*, 2001; Green & Kaplan 1994) had a sample of between 22 and 32. Only one study (Green & Kaplan, 1994) had a control group. Jackson and Birchwood (2006) advocate caution in relying on results from small cross-sectional studies, as there is a risk of bias that may lead to an overestimate in the prevalence of early trauma and potentially oversimplification of its' aetiological influence.

The small number of studies identified in the review appear to be at odds with the large evidence base for childhood trauma and psychopathology that exists for the general population (Read *et al.*, 2008; Kessler *et al.*, 2010; Bebbington *et al.*, 2011; Martins *et al.*, 2011; Bentall *et al.*, 2012; Varese *et al.*, 2012), and it is important to consider why this may be the case.

Ten of the studies reviewed were conducted in prisons and the majority of participants were female (1,327 out of a total of 1,785 participants), despite women only constituting between two and nine per cent of the world prison population, Walmsley (2006). Only two studies (with a combined total of 62 participants) came from high secure hospitals. This may be because there are

additional ethical barriers to conducting research in forensic settings, or that the primary focus of research may be on aetiology of criminal behaviour rather than mental health. It is surprising that so little research has been forthcoming from high secure forensic hospitals on this subject, but they represent a particularly complex population who may be considered too ill or too risky to participate.

The studies that do exist from this population may have small samples or may not reach statistical power, which could deter some researchers from publishing or may mean that findings are not accepted for publication. The limited resources available for this review prevented a search of the 'grey literature' of unpublished dissertations and theses, but a subsequent investigation in this area is indicated. A further limitation of the literature search that formed the basis of this systematic review was that it only considered studies published in English, again due to limited resources that prohibited translation of studies published in other languages.

A theme noted throughout many of the studies reviewed was that the forensic population is heterogeneous and that it is difficult to make direct comparisons between studies despite a range of criteria being adopted. Furthermore, comparisons should be limited to groups with similar demographics and abuse histories. For example Swogger *et al.* (2011) recruited male and female participants from a pre-trial programme and Booker Loper *et al.*'s (2008) participants were females with a history of violence. Most of Johnson *et al.*'s (2005) male participants had convictions for drug related offences. Inclusion of two studies in this review that were from forensic inpatient populations (Spitzer

et al., 2006; Cima *et al.*, 2001) increased the diversity of studies reviewed further.

All of the included studies used self-report measures of abuse. Briere (1992) acknowledged that when using retrospective measures to examine childhood abuse and psychopathology, it is often assumed one follows the other, but the reverse is also possible, thus current symptoms may affect recall of experiences. The accuracy of reports may also be affected by the amount of time that has passed since the abuse occurred and the perceived stigma related to disclosure. Conversely, there may be a secondary gain to claiming to have a history of childhood abuse, as it could be seen as a mitigating factor in offending (Widom, Weiler, & Cottler, 1999). It has been suggested that this could be avoided if research was independently verified by another source such as a child protection investigation, but many victims do not disclose abuse until years later, if at all (Herman, 1992).

More recently this concern has not been supported in the general psychiatric population. Read *et al.* (2008) found that reports of abuse by patients have been repeatedly found to be reliable. Furthermore, Fisher *et al.* (2011) found similar rates of reliability with patients with psychosis. Further research on this matter specifically involving the forensic population is required.

It has also been acknowledged that there is no consensus in the literature regarding a definition of child abuse. For example, Briere (1992) highlighted that CSA can be seen to occur under the age of 16 or 18, or by a perpetrator that is at least five years older. Other factors such as parental separation or illness may be

relevant and it is important to remember that experiences also overlap and co-occur and are therefore difficult to control for (Severi Martins *et al.*, 2011). The review defined childhood trauma as emotional, physical and sexual abuse and neglect that occurred before the age of 18 (Bernstein *et al.*, 1994), and excluded studies that did not use standardised measures of abuse. There was still much variation in reported abuse in the studies reviewed, for example the prevalence of CSA varied between 30.6% in Messina and Grella (2006) and 87% in Swogger *et al.* (2011) due to the range of measures used and the heterogeneity of the included studies.

Taking these limitations and the overall ratings of the studies into account, twelve found an association between childhood trauma and psychopathology (Tripodi & Pettus-Davis, 2013; Ashberg & Renk, 2012; Swogger *et al.*, 2011; Booker Loper *et al.* 2008; Roe-Sepowitz *et al.*, 2007; Spitzer *et al.*, 2006; Messina & Grella, 2006; Driessen *et al.* 2006; Johnson *et al.*, 2005; Dietrich, 2003; Zlotnick, 1997; Green & Kaplan). Perhaps unsurprisingly in a forensic population, the largest area of interest in the selected papers was substance misuse, with five studies reporting significant associations between child abuse and substance misuse (Tripodi & Pettus, 2013; Asberg & Renk 2012; Swogger *et al.*, 2011; Messina & Grella 2006; Johnson *et al.*, 2005). These results are in keeping with the literature for the general population (Simpson & Miller 2002; Dube *et al.*, 2003; Cuomo *et al.*, 2008).

Five studies examined the association between child abuse and specific trauma related symptoms. Spitzer *et al.* (2006) and Zlotnick (1997) found a significant relationship between childhood trauma and PTSD. Roe-Sepowitz *et al.* (2007),

Dietrich (2003) and Zlotnick (1997) all identified a significant association between child abuse and dissociation, which again reflects the evidence -base for the general population (Courtois & Ford, 2009). Booker Loper *et al.* (2008) found a relationship between childhood physical abuse and emotional abuse and Cluster B personality disorders, which include BPD, but not sexual abuse. This contradicts the existing trauma literature (Herman & van der Kolk 1987; McLean & Gallop 2003), but methodological limitations previously acknowledged could have influenced this result.

Similarly, Cima *et al.* (2001) did not find evidence of a relationship between child abuse and dissociation and it has already been acknowledged that there may be methodological reasons for this. Interestingly, they did find a positive correlation between self-reports of trauma and frontal lobe functioning and concluded that dissociation could be related to neurological deficits. If we consider Read *et al.*'s (2001) TN model, it is plausible that childhood trauma may have had a detrimental effect on neurological functioning, but this was beyond the scope of the research at that time.

Four studies found a significant relationship between childhood trauma and a range of psychiatric disorders or contact with psychiatric services (Tripodi & Pettus-Davis 2013; Driessen *et al.*, 2006; Messina & Grella; 2006; Green & Kaplan, 1994). It was surprising that there were no studies on trauma and psychosis identified, despite Fazel and Danesh's (2002) systematic review of 22,720 prisoners (81% men) identifying 3.7% of men with psychosis and the large evidence base on this subject in the wider population (Shevlin *et al.*, 2007; Shevlin *et al.*,

2008; Read *et al.*, 2008; Bebbington *et al.*, 2011; Bentall *et al.*, 2012; Varese *et al.*, 2012).

One of the inclusion criteria for this review was any mental illness or personality disorder diagnosed according to DSM-IV or ICD-10 criteria, but this excluded a number of studies that had been undertaken that explored childhood trauma and factors such as risk of self-harm and suicide (Mazano, Hawton, Rivlin & Fazel, 2011; Godet-Mardirossian, Jehel & Falissard, 2011), both of which are of significant concern within the forensic population. If the review had instead adopted the position of Read *et al.* (2005) that we should see a range of symptoms as maladaptive response to abuse, then these studies would have been included for consideration. However widening the criteria to this extent would make it more challenging to assess and synthesise the material identified.

Returning to the aims of this systematic review, it sought to identify and critically appraise the research on childhood trauma and psychopathology in forensic settings. It is therefore appropriate to conclude with some clinical implications from the findings that have emerged from the research. A number of the studies suggest that existing treatments need to be improved to consider underlying risk factors such as childhood trauma (Tripodi & Pettus-Davis, 2013; Asberg & Renk, 2012; Swogger *et al.*, 2011; Spitzer *et al.*, 2006; Messina & Grella, 2006; Dietrich, 2003). Four of the studies also recognised the relationship between childhood trauma and recidivism (Zlotnick, 1997; Johnson *et al.*, 2005; Messina & Grella, 2006; Roe-Sepowitz *et al.*, 2007) and proposed that early intervention and treatment might reduce the risk of offending behaviour. A theme was enquires

regarding childhood trauma need to be part of all psychiatric assessments and trauma focused formulations and interventions are required, (Read *et al.*, 2008).

Conclusion

This systematic review has highlighted that research on the forensic population is at an early stage. As the majority of studies that have been undertaken are small and cross-sectional in design it suggests that there are additional ethical and methodological barriers when compared with other areas of research. Examination of the findings of these studies revealed a relationship between childhood trauma and psychopathology, but it is difficult to generalise due to heterogeneity of this population. There is a need to design larger studies with more sophisticated methodology to examine the sequelae of childhood trauma. The development of further research to improve the treatment of psychopathology and reduce recidivism is also required.

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Appendix 1: *The Journal of Forensic Psychiatry and Psychology*'s Instructions for Authors

The Journal of Forensic Psychiatry and Psychology considers all manuscripts on the strict condition that they have been submitted only to *The Journal of Forensic Psychiatry and Psychology*, that they have not been published already, nor are they under consideration for publication or in press elsewhere.

Contributions to *The Journal of Forensic Psychiatry and Psychology* must report original research and will be subjected to review by referees at the discretion of the Editorial Office.

The submission should include for each author, name, degrees or other qualifications, position or affiliation, the department where the work was done and an address for correspondence with postcode.

Manuscripts should be compiled in the following order: title page; abstract; keywords; main text; acknowledgments; appendixes (as appropriate); references; table(s) with caption(s) (on individual pages); figure caption(s) (as a list).

All the authors of a paper should include their full names, affiliations, postal addresses, telephone numbers and email addresses on the cover page of the manuscript. One author should be identified as the corresponding author. The affiliations of all named co-authors should be the affiliation where the research was conducted.

For all manuscripts non-discriminatory language is mandatory. Sexist or racist terms should not be used.

The manuscript

Submissions should be in English, double-spaced with wide margins. Pages must be numbered.

Articles should normally be no more than 5,000 words in length (excluding references) and be preceded by an abstract of no more than 150 words.

Review papers (e.g. systematic reviews, meta-analyses, law reviews) and some empirical studies may require greater length and the Editors are happy to receive longer papers. We encourage brevity in reporting research.

Brief reports should be no more than 2,000 words in length, including references.

Normally, there should be a maximum of one table.

The abstract should be followed by three to six keywords.

Any notes or footnotes, tables and figures should not be inserted in main text of the manuscript but should be on separate pages. Tables and figures should be numbered consecutively in Arabic numerals with a descriptive caption. The desired position in the text for each table and figure should be indicated in the margin of the manuscript. A word count should be provided.

Style guidelines

Description of the Journal's article style

American Psychological Association (APA) referencing style should be used

Any consistent spelling style is acceptable. Use single quotation marks with double within if needed.

For direct quotations of 40 words or more, which will be printed as prose extracts, page numbers are required. Always use the minimum number of figures in page numbers, dates etc., e.g. pp. 24-4, 105-6 (but using 112-13 for 'teen numbers) and 1968-9.

Appendix 2: Systematic Review Protocol

Background

- There is a large body of research regarding the affect of childhood trauma, such as emotional, physical and sexual abuse and neglect on the development of mental disorders.
- It would be clinically useful to establish what the research literature says about the affect of childhood trauma on mental disorders, within the forensic population.
- No systematic reviews have been conducted in this area to date.

Review question

What is the effect childhood trauma; defined as emotional, physical, sexual abuse and neglect before the age of 18, on the mental health of forensic inpatients and prisoners?

Population

- Inpatients in forensic hospitals
- Prisoners

Childhood trauma

- Emotional abuse
- Physical abuse
- Sexual abuse
- Neglect
- Before the age of 18
- It is the principle independent variable in a study

Psychopathology

- Any mental disorder diagnosis defined in DSM-IV and ICD-10.
- It is the principle dependent variable in a study

Study design

- All types of research design e.g. observational studies, cohort studies, case-control studies, case series studies.

- Validated rating scale used
- Full text available
- Published in English
- All years included

Search strategy

- Keyword searches of the online databases - CINAHL, EMBASE Medline and PsychINFO, using the search terms child abuse, childhood trauma, criminal, forensic patient, mental disorder, mental illness, personality disorder, prisoner.
- A hand search of the reference lists of papers, which met eligibility criteria for the systematic review.
- A hand search of the Journals that the eligible papers were in.
- A repeat search of the online databases towards the end of the review period.

Data extraction

- General information e.g. author, title, citation, country, funding.

- Research characteristics e.g. research question, design, inclusion and exclusion criteria, setting, recruitment procedures.
- Participants e.g. number, age, gender, ethnicity, education, offence history
- Methods e.g. measurement tools
- Analysis and results
- Quality of reporting
- Generalisability

Quality assessment

- Research question
- Population
- Design and methods
- Statistical analyses
- Quality of reporting

- Generalisability

Scoring categories of well covered = 3; adequately addressed = 2; poorly addressed = 1; not addressed/not reported/not applicable =0.

Overall assessment of the study Good > 70%, Fair > 50%, Weak < 50%.

Inter-rater reliability assessed using Cohen's Kappa.

Data synthesis

- Table of individual study findings
- An overall narrative assessment of the quality of the research in this area.
- Limitations of the research
- Areas identified for future research

Dissemination

- Thesis chapter in doctorate portfolio
- Submit journal article for publication

Appendix 3: Excluded Studies	Reasons for Exclusion
1. Poussant, M., Tremblay, R.E. & Falissard (2011). Multivariate dependencies between difficult childhood, temperament and antisocial personality disorder of French males prisoners. <i>Revue d'Epidemiologie et de Sante Publique</i> 59, 169-174.	<ul style="list-style-type: none"> • Childhood trauma was only one of a number of independent variables measured. • It did not use a validated measure of childhood trauma.
2. Carli, V., Mandelli, L., Zaninotto, L., Roy, A., Recchia, L., Stoppa, L. & Sarchiapone, M. (2011). A protective genetic variant for adverse environments? The role of childhood traumas and serotonin transporter gene on resilience and depressive severity in a high-risk population. <i>European Psychiatry</i> 26, 471-478.	<ul style="list-style-type: none"> • The study was looking at the interaction between childhood trauma and a specific gene on resilience and depression.
3. Bennouna-Greene, M., Bennouna-Greene, V., Berna, F. & Defranoux (2011). History of abuse and neglect in patients with schizophrenia who have a history of violence. <i>Child Abuse and Neglect</i> 35, 329-332.	<ul style="list-style-type: none"> • The study looked at the prevalence of childhood trauma in forensic patients with schizophrenia, rather than the relationship between these variables.
4. Silberman, M. (2010). Sexual Abuse in childhood and the mentally disordered female offender. <i>International Journal of Offender Therapy and Comparative Criminology</i> , 54, 783-802.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma. • The outcome variable is mental health treatment.
5. Warren, J., Booker Loper, A. & Komarovskaya, I. (2009). Symptom patterns related to traumatic exposure among female inmates with and without a diagnosis of posttraumatic stress disorder. <i>The Journal of the American Academy of Psychiatry and the Law</i> , 37, 294-305.	<ul style="list-style-type: none"> • The research examined lifetime rather than childhood trauma.

6. Specht, M.W., Chapman, A. & Cellucci, T. (2009). Schemas and borderline personality disorder symptoms in incarcerated women. <i>Journal of Behavior Therapy and Experimental Psychiatry</i> , 40, 256-264.	<ul style="list-style-type: none"> • Early maladaptive schema (EMS) domains were the principle independent variables.
7. Roberts, A., Yang, M., Zhang, T. & Coid, J. (2008). Personality Disorder, temperament, and childhood adversity: findings from a cohort of prisoners in England and Wales. <i>The Journal of Forensic Psychiatry and Psychology</i> , 19, 4, p 460-483.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma.
8. Cuomo, C., Sarchiapone, M., Di Giannantonio, M., Mancini, M. & Roy, A. (2008). Aggression, Impulsivity, Personality Traits, and Childhood Trauma of Prisoners with Substance Abuse and Addiction. <i>The American Journal of Drug and Alcohol Abuse</i> , 34, 339-345.	<ul style="list-style-type: none"> • Childhood trauma was only one of a number of independent variables measured.
9. Matsumoto & Imamura (2007). Association between childhood attention-deficit-hyperactivity symptoms and adulthood dissociation in male inmates: Preliminary report. <i>Psychiatry and Clinical Neurosciences</i> , 61, 444-446.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma.
10. Akyuz, G., Kugu, N., Sar, V. & Dogan, O. (2007). Trauma and dissociation among prisoners. <i>Nordic Journal of Psychiatry</i> , 61, 167-172.	<ul style="list-style-type: none"> • This study examined lifetime trauma, which incorporated some measures of childhood trauma.

11. Huang, G., Zhang, Y., Momartin, S., Cao, Y. & Zhao, L. (2006). Prevalence & characteristics of trauma and posttraumatic stress disorder in female prisoners in China. <i>Comprehensive Psychiatry</i> 47, 20-29.	<ul style="list-style-type: none"> • This study examined lifetime trauma, which incorporated some measures of childhood trauma.
12. Sirag Garieballa, S., Schauer, M., Neuner, F., Saleptsi, E., Kluttig, T., Elbert, T & Rockstroh, B. (2006). Traumatic events, PTSD, and psychiatric comorbidity in forensic patients- assessed by questionnaires and diagnostic interview. <i>Clinical Practice and Epidemiology in Mental Health</i> , 2, 7, 1-7.	<ul style="list-style-type: none"> • This study examined lifetime trauma, which incorporated some measures of childhood trauma.
13. Grella, C.E., Stein, J.A. & Greenwell, L. (2005). Associations among childhood trauma, adolescent problem behaviors, and adverse adult outcomes in substance-abusing women offenders. <i>Psychology of Addictive Behaviors</i> , 19, 1, 43-53.	<ul style="list-style-type: none"> • Substance abuse was only one of a number of outcome variables measured.
14. Timmerman, I.G.H. & Emmelkamp, P.M.G. (2005). Parental Rearing Styles and Personality Disorders in Prisoners and Forensic Patients. <i>Clinical Psychology and Psychotherapy</i> , 12, 191-200.	<ul style="list-style-type: none"> • Parental rearing styles rather than childhood trauma was the independent variable.
15. Mullings, J.L., Hartley, D.J. & Marquart, J.W. (2004). Exploring the relationship between alcohol use, childhood maltreatment, and treatment needs among female prisoners. <i>Substance Use and Misuse</i> , 39, 2, 277-305.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma.

16. Timmerman, I.G.H. & Emmelkamp, P.M.G. (2001). The relationship between traumatic experiences, dissociation, and borderline personality pathology among male forensic patients and prisoners. <i>Journal of Personality Disorders</i> , 15, 2, 136-149.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma.
17. Butler, T., Donovan, B., Fleming, J. Levy, M. & Kaldor, J. (2001). Childhood sexual abuse among Australian prisoners. <i>Venereology</i> , 14, 109-15.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma. • Substance abuse and depression were only two of a number of outcome variables measured.
18. Fogel, C.I. & Belyea, M. (2001). Psychological risk factors in pregnant inmates: a challenge for nursing. <i>The American Journal of Maternal/Child Nursing</i> , 26, 1 10-16.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma or substance abuse. • Substance abuse and depression were only two of a number of outcome variables measured.
19. Fondacaro, K.M. & Holt, J.C. (1999). Psychological impact of childhood sexual abuse on male inmates: the importance of perception. <i>Child Abuse and Neglect</i> , 23, 4, 361-369.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma.
20. Haapasalo, J. & Virtanen, T. (1999). Paths between childhood emotional and other maltreatment and psychiatric problems in criminal offenders. <i>Journal of Emotional Abuse</i> , 1, 4 15-35.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma.
21. Zlotnick, C. (1999). Antisocial personality disorder, affect dysregulation and childhood abuse among incarcerated women.	<ul style="list-style-type: none"> • Affect dysregulation was the principle independent variable.

Journal of Personality Disorders, 13, 1, 90-95.	
22. McClellan, D.S., Farabee, D. & Crouch, B.M. (1997). Early victimization, drug use and criminality. A comparison of male and female prisoners. Criminal Justice and Behavior, 24, 4, 455-476.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma or mental health.
23. El-Bassel, N., Gilbert, L. Schilling, R.F., Ivanoff, A. & Borne, D. (1996). Correlates of crack abuse, among drug-using incarcerated women: psychological trauma, social support and coping behavior. American Journal of Drug and Alcohol Abuse, 22, 1, 41-56.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma or drug misuse. • Drug misuse was only one of a number of outcome variables measured.
24. El-Bassel, N., Ivanoff, A., Schilling, R.F., Gilbert, L., & Duan-Rung, C. (1995). Correlates of problem drinking among drug-using incarcerated women. Addictive Behaviors, 20, 3, 359-369.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma or drug misuse. • Drug misuse and depression were only two of a number of outcome variables measured.
25. Sheridan, M. (1995). A proposed intergenerational model of substance abuse, family functioning, and abuse/neglect. Child Abuse and Neglect, 19, 5, 519-530.	<ul style="list-style-type: none"> • The study did not use a validated measure of childhood trauma.

Appendix 4: Systematic Review Data Extraction Form

General information

Number:

Author(s):

Title:

Citation:

Country of origin:

Funding:

Research characteristics

Research question:

Research design:

Setting:

Inclusion criteria:

Exclusion criteria:

Recruitment procedure used:

Population

Number of participants approached:

Number of participants who took part:

Number of participants included in the analysis:

Number of withdrawals, exclusions, lost to follow up:

Control group:

Age:

Gender:

Ethnicity:

Education:

Offence history:

Method

Measurement tools:

Statistical analysis:

Results

Mean and standard deviation:

Confidence intervals and p -value:

Limitations

Generalisability

Appendix 5: Quality Assessment

Summary of Quality Criteria	Score
1. Research question	
2. Population	
3. Design and methods	
4. Statistical analyses	
5. Quality of reporting	
6. Generalisability	
Total Score	
Percentage based on the number of applicable items	
Category (Good $\geq 70\%$, Fair $\geq 50\%$, Weak $< 50\%$)	

1. Research Question

1.1 The study has a clearly focused research question that has been drawn from previous research.

Well covered = 3	
Adequately addressed = 2	
Poorly addressed = 1	
Not address or not reported = 0	
Not applicable = 0	

2. Population

2.1 The participants are representative of the group being studied.

Well covered = 3	
Adequately addressed = 2	
Poorly addressed = 1	
Not address or not reported = 0	
Not applicable = 0	

2.2 The study describes how many people were recruited and how many declined, or withdrew.

Well covered = 3	
Adequately addressed = 2	
Poorly addressed = 1	
Not address or not reported = 0	
Not applicable = 0	

3. Design and methods

3.1 The variables under investigation are clearly defined and measured.

Well covered = 3	
Adequately addressed = 2	
Poorly addressed = 1	
Not address or not reported = 0	
Not applicable = 0	

3.2 Measures used demonstrate validity and reliability.

Well covered = 3	
Adequately addressed = 2	
Poorly addressed = 1	
Not address or not reported = 0	
Not applicable = 0	

4. Statistical analyses

4.1 Statistics used are reported and appropriate.

Well covered = 3	
Adequately addressed = 2	
Poorly addressed = 1	
Not address or not reported = 0	
Not applicable = 0	

5. Quality of reporting

5.1 Reporting of methods, analyses and results are sufficiently clear to enable replication and a summary of findings.

Well covered = 3	
Adequately addressed = 2	
Poorly addressed = 1	
Not address or not reported = 0	
Not applicable = 0	

6. Generalisability

6.1 The findings could be generalised to similar populations.

Well covered = 3	
Adequately addressed = 2	
Poorly addressed = 1	
Not address or not reported = 0	
Not applicable = 0	

Rationale and aims of the current study

Thomas, Harty and Parrot (2005) acknowledged the need to better understand the relationship between childhood trauma, psychopathology and offending behaviour and how this affects risk and treatment outcomes. Austin (2011) identified a high level of childhood trauma in her exploratory research in secure hospitals in Scotland, which required further investigation. Therefore, the aim of this study was to examine whether child abuse and insecure attachment patterns were significant predictors of psychopathology, risk of violence, hospital violence and engagement in psychological therapy in a forensic population.

Hypotheses

Based on the existing research findings in this area, the following one-tailed hypotheses were proposed:

- Childhood trauma and insecure attachment are associated with increased psychopathology, and a history of childhood trauma and insecure attachment will predict increased psychopathology.
- Childhood trauma and insecure attachment are associated with an increased risk of violence, and a history of childhood trauma and insecure attachment will predict an increased risk of violence.
- Childhood trauma and insecure attachment are associated with problems with engagement in psychological therapies, and childhood trauma and insecure attachment will predict problems with engagement in psychological therapies.

CHAPTER 2 - EXTENDED METHOD

Design and setting

This was a retrospective study that took place in The State Hospital, Carstairs, a high secure forensic psychiatric hospital for Scotland and Northern Ireland, The Orchard Clinic, Edinburgh and Rowanbank Clinic, Glasgow, which are both medium secure forensic hospitals.

All patients are detained under the Mental Health (Care and Treatment) (Scotland) Act 2003 or the Criminal Procedure (Scotland) Act (1995) because they are deemed to have a mental disorder and pose a risk of harm to others. Patients are admitted from court, prison or other another psychiatric hospital. While most patients have either been convicted of a violent criminal offence or acquitted by reason of a mental disorder, a minority have been detained because of significant concerns about their behaviour in less secure settings.

Ethical Considerations

Ethical approval was obtained from the South East Scotland Research Ethics Committee. Research and Development consent was attained from NHS State Hospital's Board for Scotland, NHS Lothian and NHS Greater Glasgow and Clyde. Letters confirming permission to conduct the study are to be found in Appendix 1.

Power Calculation

A priori power calculations using G*Power software (Faul, Erdfelder, Lang & Buchner, 2007), for a multiple regression analysis with an alpha level of .05, four

predictor variables, and an anticipated effect size of 0.3, with a statistical power level of 0.80, indicated a minimum sample size of 45 participants.

Participants

At the time of data collection from September 2012 to March 2013 there were up to 140 patients at the State Hospital, up to 74 patients at Rowanbank Clinic and up to 50 patients at the Orchard Clinic. The inclusion criteria for the study was that participants were age 18 or over, without a learning disability and had capacity to provide consent.

Letters were sent to the Responsible Medical Officers (RMO) at each hospital (Appendix 2), which provided information about the aims of the study and requested that they send a list of their patients with capacity to consent, to a designated Clinical Psychologist. Ninety- four participants were identified at the State Hospital, 15 at The Orchard Clinic and 18 at Rowanbank Clinic. Clinicians also excluded some patients with capacity for other reasons (e.g. poor mental health, about to be discharged). From this group 63 declined to participate, leaving a total of sample of 62 males and two females, a response rate of (48.1 %).

Measures

Childhood Trauma Questionnaire (CTQ)

The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) is a 28-item self-report retrospective measure of abuse and neglect. Five categories of childhood maltreatment are assessed: *emotional abuse*, *physical abuse*,

sexual abuse, emotional neglect and physical neglect, with five items included in each. Respondents are asked to rate statements about their experience of childhood on a five-point Likert scale (1 = *Never True*, 2 = *Rarely True*, 3 = *Sometimes True*, 4 = *Often True* and 5 = *Very Often True*). Positively worded questions are reverse scored. Items are then summed to produce overall scores, which can then be categorised into the following score ranges: *none or minimal, low to moderate, moderate to severe and severe to extreme*. As the CTQ is designed to assess the severity of childhood trauma a person has experienced, it is also possible to establish an overall dose effect, with the higher the total score, the more trauma experienced. The CTQ also has three items to identify false-negative reports of child abuse, which form a *minimisation/denial scale*. The CTQ has been validated with both clinical and non-clinical population and has demonstrated good internal consistency (Chronbach's $\alpha = 0.66$ to 0.92). Test-retest results range from $r = 0.79$ to 0.81 (Bernstein & Fink, 1998).

Relationship Scales Questionnaire (RSQ)

The Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994) is a 30-item self-report measure that has been designed to yield a range of different attachment category scores. Respondents are asked to rate statements regarding their feelings about close relationships on a five-point Likert scale (1 = *Not at all like me*, 3 = *Somewhat like me* and 5 = *Very much like me*). The RSQ has shown good discriminant and convergent validity across its underlying attachment dimensions (Griffin & Bartholomew, 1994). The RSQ has been validated with clinical and non-clinical population (Perrier, Boucher, Etchegary, Sadava & Molner, 2010; Hansen, Waage, Eid, Johnson & Hart 2011) and has demonstrated good internal consistency (Chronbach's $\alpha = 0.68$ to 0.77).

The current study used the four attachment categories devised by Bartholomew and Horowitz (1991) that is *secure*, *fearful*, *preoccupied* and *dismissing*. The category, which the participant achieved the highest score, was deemed to be their predominant attachment type. Participants' dimensional scores of each attachment category were also used in analyses.

Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM)

The Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM; Evans et al., 2002), is a 34-item self-report questionnaire that is widely used in psychological therapy contexts (Office of Health Economics, 2008). The instrument measures difficulties in the domains of wellbeing, psychological symptoms, functioning and risk. Each item is scored on a five-point Likert scale (*0 = Not at all, 1 = Only occasionally, 2 = Sometimes, 3 = Often, and 4 = Most or all of the time*). A mean score for each category and for the overall total can be calculated.

The CORE-OM has demonstrated good internal reliability and test re-test validity is high ($r = 0.75-0.95$; Evans, et al., 2002). Most research using the CORE-OM has involved community samples, however it has been found to be valid for people with BPD (Whewell & Bonnano, 2000) and also in forensic settings (McCloskey, 2001). A recent study found that the CORE-OM was acceptable and potentially useful in secure hospitals, with good internal validity (Chronbach's $\alpha = 0.87$; Perry, Barkam & Evans, 2013).

Historical Clinical Risk Management Violence Risk Assessment Scheme (HCR-20)

The Historical Clinical Risk Management Violence Risk Assessment Scheme (HCR-20) (Webster, Douglas, Eaves & Hart, 1995) is a structured professional judgment tool, designed to predict and manage violence. It is divided into 10 items related to historical risk factors which are largely static (e.g. *previous violence, early maladjustment*), five dynamic and potentially changeable risk factors related to current clinical functioning (e.g. *lack of insight, impulsivity*), and five dynamic items related to future risk (e.g. *lack of personal support, exposure to destabilisers*).

Clinically, risk must be assessed using illustrative scenarios, which are then used to plan interventions. However, it is possible to measure risk for research purposes using an actuarial 3-point scale (*0 = not present, 1 = partially or possibility present and 2 = present*) for each item, with a maximum total score of between 0 and 40. Although individual items are not equally weighted in clinical practice, researchers have interpreted greater scores to represent greater potential risk (Macpherson & Kevan, 2004). If there is insufficient information for completion of an HCR-20 item (e.g. a psychopathy assessment is outstanding), it can be omitted and pro-rated by taking the average score of the subscale (Gray, Taylor & Snowden 2008). The HCR-20 has been validated across forensic populations and the mean effect size has been found to range from moderate to large in size ($r \cong 0.3-0.5$), (Douglas, Yeomans & Boer, 2005).

Service Engagement Scale (SES)

The Service Engagement Scale (SES; Tait, Birchwood & Trower 2002) was developed to measure the engagement of patients with schizophrenia with

services in the community. It is a 16-item questionnaire, which examines the categories of availability, collaboration, help-seeking and treatment adherence. Each item is scored on a four-point Likert Scale (*0 = Not at all or rarely, 1 = sometimes, 2 = often, 3 = most of the time*). Positively worded questions are reverse scored. Subscale scores are added together and the higher the score, the lower the engagement. The SES has good internal consistency (Chronbach's alpha = 0.76 - 0.90) and good to excellent test - retest reliability ($r = 0.80 - 0.97$; Tait et al., 2002).

Procedure

Patients identified by their RMO as having capacity to consent were approached by a member of the hospital's Psychology Service (third party) in keeping with ethical procedures for recruitment. They were offered a copy of one of two, *Participant Information Sheets* (Appendix 3). As this study followed on from previous research conducted by Austin (2011) across the three hospitals, it was necessary to create two, one for new patients and one for those that had participated in her research.

The staff member discussed the nature of the study with each identified patient. Names of patients interested in taking part were passed to the researcher, who arranged to meet with them at a convenient time to answer any further questions they might have. The researcher complied with security measures in each hospital and established with the nursing staff on each ward, that the identified patients' mental health was sufficiently stable to meet with them.

Patients, who decided to participate, then completed a *Consent Form* and they were provided with a copy to keep (Appendix 9). Further copies were passed to

the participants' RMO, Clinical Psychologist and General Practitioner (GP). A letter explaining the nature of the study was also sent with the Consent Form to the GP (Appendix 10).

A convenient time to complete the Childhood Trauma Questionnaire (CTQ), Relationship Scales Questionnaire (RSQ) and Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM) was arranged with each participant. For the majority of participants, this occurred straight after they completed the consent form. Participants were then thanked and asked if they had any further questions or required any additional support as a consequence of participating.

Previous CTQ scores were obtained for the 13 patients who had participated in the Austin (2011) study, so that they did not have to provide this information again. The State Hospital has adopted the CORE-OM as a measure since February 2012 and the first available CORE-OM was obtained for a subsample of $n=27$ and an average score of the first and last CORE-OM taken.

Consent was gained from participants to access their clinical files in order to obtain background demographic information about their diagnosis, substance misuse history and their HCR-20 data. In this study, each participant's clinical team had compiled the HCR-20 assessments used, which are updated annually. The earliest dated back to 2005, when the HCR-20 was first introduced to the high secure forensic psychiatric hospital. A mean score of the first available and last HCR-20 was calculated, where available. Three participants did not have a completed risk assessment and five participants had an alternative risk assessment

to the HCR-20, which led to a subsample of 56 participants with data for this measure. Of these, 46 participants had more than one completed HCR-20.

Consent was sought to obtain the number of verbal and physically aggressive episodes recorded for each participant on the hospitals' incident reporting system (DATIX).

Participants also agreed to a member of the Psychology Service completing the Service Engagement Questionnaire (SES) about their level of engagement in psychological therapy. Only scores from the subtotals *availability*, *collaboration* and *help seeking* were used in analysis as the treatment adherence subscale is about compliance with medication.

The mean age of participants was 42.3 years ($SD = 11.9$; median = 44), ranging from 19 to 67 years. The majority of participants had at least one conviction prior to their index offence (the crime that led to their detention at a secure hospital or prison). Fifty-four participants (84.4%) had committed previous offences, with a mean number of 15.9 offences per patient ($SD = 21.2$; median = 8) ranging from one to 100.

The mean number of years since participants' first contact with mental health services was 21.3 years ($SD = 12.3$; median = 20) ranging from two to 50 years. The mean number of years participants had spent in a secure hospital was 11.2 years ($SD = 10.8$; median = 8), ranging from one to 46 years. The mean number of verbally or physically violent incidents reported in hospital per participant was 16

(SD = 49.3; median = 4), ranging from zero to 372. Further demographic information is provided in Table 1 below.

Table 1: Demographic characteristics

		Number (% total sample)
Gender	Male	62 (96.9%)
	Female	2 (3.1%)
Ethnicity	Caucasian	62 (96.9%)
	Other Ethnicity	2 (3.1%)
Primary Diagnosis	Schizophrenia Spectrum Disorder	59 (92.2%)
	Dissocial Personality Disorder	5 (7.8%)
Secondary Diagnosis	None	35 (54.7%)
	Dissocial Personality Disorder	15 (23.4%)
	Other Personality Disorder	13 (20.3%)
	Autistic Spectrum Disorder	1 (1.6%)
Substance Misuse	Yes	48 (75%)
	No	16 (25%)
Index Offence	Murder	27 (42.2%)
	Attempted Murder	9 (14.1%)
	Assault to Severe Injury	7 (10.9%)
	Assault	6 (9.4%)
	Sexual Assault	10 (15.6%)
	Criminal Damage	3 (4.7%)
	Challenging Behaviour (No Conviction)	2 (3.1%)
Attachment	Dismissing	29 (45.3%)
	Secure	17 (26.6%)
	Fearful	14 (21.9%)
	Preoccupied	4 (6.3%)

Data protection and storage

Participants' anonymity was maintained by information from their file and each questionnaire being allocated a number. All data was stored in accordance with the Data Protection Act (1998), in a locked filing cabinet at The State Hospital. This information was subsequently entered into a password protected SPSS database, version 19.0 for MAC OS X.

Data Analysis

Variables were checked for normality using the Shapiro-Wilks test. Non-parametrically distributed data was examined using Spearman Correlations. Stepwise Multiple Regression analyses were performed with the CTQ and RSQ scores as predictor variables and the CORE- OM scores, HCR-20, SES scores, number of DATIX incidents and number of years since first contact with mental health services as predictors.

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APPENDIX 1 -Ethical and Research and Development Approval Letters

Marlene Macinnes
Trainee Clinical Psychologist
The State Hospital

Friday the 2nd of March 2012

Dear Marlene,

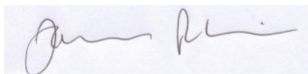
Re: The Influence of Childhood Trauma on Psychopathology and Recovery in Forensic Mental Health

Many thanks for your amended research proposal that was reviewed by the TSH Research Committee on Thursday the 23rd of February 2012. The committee found the proposal to be an interesting piece of work, and are happy to approve the study with some conditions.

- The committee are concerned over the required sample size and feel it is unlikely to be achieved from TSH alone. Subsequently contact should be made with the Orchard clinic (and possibly Rowanbank) at the outset to arrange their inclusion in the study in order to increase the chances of ensuring a study that achieves power.
- The committee would be keen that the study is reviewed by a full ethics committee given the nature of the study. If this is not the case and exemption is provided then the committee reserve the right to review some study safeguards prior to commencement.
- Line manager and supervisor sign off is still required

One condition of the research committees' approval is that you provide the committee with regular 6-monthly progress reports. This is an important mechanism by which the committee track progress, and is also a key component of our research governance processes. Given that the committee has some concerns over the study we would like to see a progress report submitted to the committee in June 2012, with 6 monthly intervals after that. If you require any further assistance, or have any feedback on the Research approval process then please do not hesitate to contact me.

Yours sincerely



JAMIE PITCAIRN
Research & Development Manager

Lothian NHS Board

**South East Scotland Research
Ethics Committee 02**



**Waverley Gate
2-4 Waterloo Place
Edinburgh
EH1 3EG
Telephone 0131 536 6000
Fax 0131 465 5769**

www.nhs.uk/lothian.nhs.uk

**Date 16 July 2012
Your Ref
Our Ref**

**Enquiries to: Joyce Clearie
Extension: 35674
Direct Line: 0131 465 5674
Email: Joyce.Clearie@nhs.uk**

16 July 2012

**Ms Marlene MacInnes
Trainee Clinical Psychologist
The State Hospital
Carstairs
Lanark
ML11 8RP**

Dear Ms MacInnes

**Study title: Examining the influence of childhood trauma on
psychopathology, risk and engagement in psychological
therapy, in forensic mental health.**
REC reference: 12/SS/0096

**Thank you for your letter of 27 June 2012, responding to the Committee's request for further
information on the above research and submitting revised documentation.**

**The further information was considered in correspondence by a sub-committee of the REC, A list
of the sub-committee members is attached.**

Confirmation of ethical opinion

**On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above
research on the basis described in the application form, protocol and supporting documentation as
revised, subject to the conditions specified below.**

Ethical review of research sites

NHS sites



**Headquarters
Waverley Gate, 2-4 Waterloo Place, Edinburgh EH1 3EG**

**Chair Dr Charles J Winstanley
Interim Chief Executive Tim Davison
*Lothian NHS Board is the common name of Lothian Health Board***

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rctforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
GP/Consultant Information Sheets	GP v1	27 June 2012
Investigator CV	CI Madhnes	
Investigator CV	Supervisor Schwannauer	01 March 2012
Other: Letter to RMO	v1	28 May 2012
Participant Consent Form: PCF1	2	27 June 2012
Participant Information Sheet: PIS1	2 OC	27 June 2012
Participant Information Sheet: PIS2	2 SFP	27 June 2012
Protocol	1	31 May 2012
Questionnaire: CTQ	CTQ	
Questionnaire: RSQ	RSQ	

Questionnaire: CORE-OM	CORE-OM	
Questionnaire: SES	SES	
REC application		08 June 2012
Response to Request for Further Information		27 June 2012

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

12/95/0095	Please quote this number on all correspondence
-------------------	---

With the Committee's best wishes for the success of this project

Yours sincerely



Mr Thomas Russell
Chair

Email: joyce.clearie@nhslothian.scot.nhs.uk

Date 30 July 2012
Our Ref FD/ag
Your Ref

Marlene Macinnes
Trainee Clinical Psychologist
Lewis Hub

Dear Ms Macinnes

Re: The Influence of Childhood Trauma on Psychopathology and Recovery in
Forensic Mental Health

Having considered the views of the Research Committee and noted that you have obtained Ethical Approval, I write to give you Managerial Approval to proceed with your project. This is subject to you fulfilling the requirements of the Ethics Committee and of the State Hospital Research Committee.

May I take this opportunity to wish you every success in your endeavour.

Yours sincerely



Dr Fergus Douds
Joint Associate Medical Director

cc. Jamie Pitcairn, Research and Development Manager.
Professor Lindsay Thomson, Medical Director.

University Hospitals Division

Queen's Medical Research Institute
47 Little France Crescent, Edinburgh, EH16 4TJ

CPP/SS/approval

01 October 2012

Ms Marlene MacInnes
The State Hospital
Carstairs
Lanark
ML11 8RP



Research & Development
Room E1.12
Tel: 0131 242 3330
Fax: 0131 242 3343

Email: R&DOffice@luht.scot.nhs.uk

Director: Professor David E Newby

Dear Ms MacInnes

Lothian R&D Project No: 2012/P/PSY/27

Title of Research: Examining the influence of childhood trauma on psychopathology, risk and engagement in psychological therapy, in forensic mental health

REC No: 12/SS/0095

Patient Information Sheet: Version 2 **Consent Form:** Version 2 dated 27 June 2012
dated 27 June 2012

Protocol: Dated 31 May 2012

I am pleased to inform you that this study has been approved for NHS Lothian and you may proceed with your research, subject to the conditions below. This letter provides Site Specific approval for NHS Lothian.

Please note that the NHS Lothian R&D Office must be informed if there are any changes to the study such as amendments to the protocol, recruitment, funding, personnel or resource input required of NHS Lothian. This includes any changes made subsequent to management approval and prior to favourable opinion from the REC.

Substantial amendments to the protocol will require approval from the ethics committee which approved your study and the MHRA where applicable.

Please inform this office when recruitment has closed and when the study has been completed.

I wish you every success with your study.

Yours sincerely

A handwritten signature in cursive script, appearing to read 'C Phillips'.

Dr Christine P Phillips
Deputy R&D Director

Cc Paul Dearie, QA Manager
 Pamela Shand, NRS
 Dr Mark Ramm

Coordinator/Administrator: Dr Michael Barber/Mrs Elaine O'Neill
Telephone Number: 0141 211 6208
E-Mail: michael.barber@ggc.scot.nhs.uk
Website: www.nhsggc.org.uk/r&d

28 November 2012

Ms Marlene MacInnes
Trainee Clinical Psychologist
The State Hospital
Carstairs
ML11 8RP

NHS GG&C Board Approval

Dear Ms MacInnes,

Study Title:	Examining the influence of childhood trauma on psychopathology, risk and engagement in psychological therapy, in forensic mental health.
Principal Investigator:	Ms Marlene MacInnes
GG&C HB site	Rowanbank Clinic
Sponsor	The State Hospital
R&D reference:	GN12MH438
REC reference:	12/SS/0095
Protocol no:	V1; 31/05/12
<small>(including version and date)</small>	

I am pleased to confirm that Greater Glasgow & Clyde Health Board is now able to grant **Approval** for the above study.

Conditions of Approval

1. **For Clinical Trials** as defined by the Medicines for Human Use Clinical Trial Regulations, 2004
 - a. During the life span of the study GGHB requires the following information relating to this site
 - i. Notification of any potential serious breaches.
 - ii. Notification of any regulatory inspections.

It is your responsibility to ensure that all staff involved in the study at this site have the appropriate GCP training according to the GGHB GCP policy (www.nhsggc.org.uk/content/default.asp?page=s1411), evidence of such training to be filed in the site file.

Delivering better health

www.nhsggc.org.uk

Page 1 of 2

BoardApprovalLetter_GN12MH438

2. **For all studies** the following information is required during their lifespan.
- a. Recruitment Numbers on a monthly basis
 - b. Any change of staff named on the original SSI form
 - c. Any amendments – Substantial or Non Substantial
 - d. Notification of Trial/study end including final recruitment figures
 - e. Final Report & Copies of Publications/Abstracts

Please add this approval to your study file as this letter may be subject to audit and monitoring.

Your personal information will be held on a secure national web-based NHS database.

I wish you every success with this research study

Yours sincerely,



Dr Michael Barber
Research Co-ordinator

Cc: Dr Matthias Schwannauer

Delivering better health

www.nhsggc.org.uk

Page 2 of 2

BoardApprovalLetter_GN12MH438

Coordinator/Administrator: Dr Erica Packard/Mrs Elaine O'Neill
Telephone Number: 0141 232 9448
E-Mail: erica.packard@ggc.scot.nhs.uk
Website: www.nhsggc.org.uk/r&d

R&D Management Office
Western Infirmary
Tennent Building
1st Floor, 38 Church Street
Glasgow, G11 6NT.

27 February 2013

Ms Marlene MacInnes
Trainee Clinical Psychologist
The State Hospital
Carstairs
ML11 8RP

Ref: GN12MH438

Dear Ms MacInnes,

NHS to NHS - Letter of Access for Research

As an existing NHS employee you do not require an additional honorary research contract with this NHS organisation. We are satisfied that the research activities that you will undertake in this NHS organisation are commensurate with the activities you undertake for your employer. Your employer is fully responsible for ensuring such checks as are necessary have been carried out. Your employer has confirmed in writing to this NHS organisation that the necessary pre-engagement check are in place in accordance with the role you plan to carry out in this organisation. This letter confirms your right of access to conduct research through **NHS Greater Glasgow and Clyde** for the purpose and on the terms and conditions set out below. This right of access commences on **28th November 2012** and ends on **31st March 2013** unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

You are considered to be a legal visitor to **NHS Greater Glasgow and Clyde** premises. You are not entitled to any form of payment or access to other benefits provided by this organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through **NHS Greater Glasgow and Clyde** you will remain accountable to your employer **The State Hospital** but you are required to follow the reasonable instructions of your nominated manager **Dr Emma Drysdale** in this NHS organisation or those given on her/his behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with **NHS Greater Glasgow and Clyde** policies and procedures, which are available to you upon request, and the Research Governance Framework.

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www.nhsggc.org.uk

NHStoNHSLetterofAccess_MacInnes.Marlene

Page 1 of 3

You are required to co-operate with **NHS Greater Glasgow and Clyde** in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on **NHS Greater Glasgow and Clyde** premises. Although you are not a contract holder, you must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of a contract holder and you must act appropriately, responsibly and professionally at all times.

If you have a physical or mental health condition or disability which may affect your research role and which might require special adjustments to your role, if you have not already done so, you must notify your employer and the Board via the **HR Department** prior to commencing your research role at the Board.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (<http://www.dh.gov.uk/assetRoot/04/06/92/54/04069254.pdf>) and the Data Protection Act 1998. Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

NHS Greater Glasgow and Clyde will not indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 1998. Any breach of the Data Protection Act 1998 may result in legal action against you and/or your substantive employer.

You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that this NHS organisation accepts no responsibility for damage to or loss of personal property.

We may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of this NHS organisation or if you are convicted of any criminal offence. You must not undertake regulated activity if you are barred from such work. If you are barred from working with adults or children this letter of access is immediately terminated. Your employer will immediately withdraw you from undertaking this or any other regulated activity and you **MUST** stop undertaking any regulated activity immediately.

Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

If your circumstances change in relation to your health, criminal record, professional registration or suitability to work with adults or children, or any other aspect that may impact on your suitability to conduct research, or your role in research changes, you must inform the NHS organisation that employs you through its normal procedures. You must also inform your nominated manager in this NHS organisation.

Yours sincerely



Dr Erica Packard
Research Co-ordinator

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www.nhsggc.org.uk

NHStoNHSLetterofAccess_MacInnes.Marlene

Page 2 of 3

APPENDIX 2 -Letter to the RMO



Version 2 10.10.12

The State Hospital
Carstairs
Lanark
ML11 8RP
(insert date)

Dr (insert name)
(insert address)

Dear Dr (insert name)

I am currently conducting research across the State Hospital, Orchard Clinic and Rowanbank Clinic entitled:

‘Examining the influence of childhood trauma on psychopathology, risk and engagement in psychological therapy, in forensic mental health.’

The research will consider whether traumatic experiences forensic patients have in their childhood has a negative effect on their mental health, risk and ability to engage in psychological therapy. It is hoped that the results can be used to develop better psychological treatment for patients.

This study intends to follow up research conducted by Jessica Austin, Specialist Psychological Practitioner last year. Patients who agree to participate in the research will be asked to complete

- The Childhood Trauma Questionnaire (CTQ)
- Relationship Style Questionnaire (RSQ)
- Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM)

which will take approximately 15 to 20 minutes. If they participated in Jessica Austin's research, previous CTQ scores will be used.

The consent form asks participants' permission to find out more information about their mental health and risk from their psychology file. It also asks permission to access any information about their risk held on the hospital database. Participants' Clinical Psychologists will finally be asked to complete a short questionnaire called the Service Engagement Scale (SES), about their patient's engagement in therapy.

The inclusion criterion for participants is that they are aged 18 or over, without a learning disability. They do not need to have a history of childhood trauma.

Confidentiality prevents me from accessing patient's names without their consent. I would therefore be grateful if you could provide a list of your patients who meet the inclusion criteria and have capacity to consent and return this to (insert name of Clinical Psychologist). They will then provide the patients with an information sheet about the study.

Patients who have capacity to consent

If you require any more information about this research, please do not hesitate to contact me, or my clinical supervisor **Dr Gary Macpherson, Lead Consultant Forensic Clinical Psychologist at the State Hospital.**

Yours sincerely

Marlene Macinnes
Specialist Psychological Practitioner

APPENDIX 3- Participant Information Sheets



Version 3 - 11.10.12

PARTICIPANT INFORMATION SHEET

Examining the influence of childhood trauma on psychopathology, risk and engagement in psychological therapy, in forensic mental health.

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish. Contact us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

The purpose of the study

This research is examining whether traumatic experiences forensic patients have in their childhood has a negative effect on their mental health, risk and ability to engage in psychological therapy. Participants do not need to have had a history of child abuse to take part. It is hoped that the results can be used to develop better psychological treatment for patients.

Why have I been invited to take part?

The study is looking to recruit patients from the State Hospital, Rowanbank Clinic and the Orchard Clinic. Your Responsible Medical Officer, (RMO) has identified you as a potential participant and has consented to you being contacted.

Do I have to take part?

No, it is up to you to decide whether or not to take part. If you decide to take part you will be asked to sign a consent form. You are free to withdraw from the study at any time, without giving a reason and without your medical care being affected in any way.

What do I have to do, if I take part?

If you are interested in taking part, your psychologist will ask Marlene Macinnes, Specialist Psychological Practitioner, to meet with you at a convenient time to answer any further questions you may have. If you decide to participate, she will ask you to complete a consent form and you will be given a copy to keep.

You will then be asked to complete three questionnaires

- The Childhood Trauma Questionnaire (CTQ)
- Relationship Style Questionnaire (RSQ)
- Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM)

This will take approximately 15 to 20 minutes.

The consent form asks permission for Marlene Macinnes to find out more information about your mental health and risk from your psychology file. It also asks your permission to access any information about your risk held on the hospital database. Marlene Macinnes will finally ask your psychologist to complete a short questionnaire called the Service Engagement Scale (SES), about your participation in therapy.

What are the possible benefits of taking part?

The main benefit in taking part is that your experience will help to increase our understanding of the effects of childhood trauma on mental health, risk and ability to engage in psychological therapy. It is hoped that the results can be used to develop better psychological treatment for patients.

What are the potential disadvantages and risks of taking part?

This research is asking participants to complete the Childhood Trauma Questionnaire. Participants who have experienced child abuse may find it more difficult to complete the questionnaire. If it is the first time they have told someone about it, this information will be dealt with sensitively. Your clinical team will be informed to ensure that you are provided with the appropriate support.

Short questionnaires were selected to keep the burden of completing them to a minimum. In the event of you becoming distressed, the interview will be immediately stopped. Should you require support, you will have direct access to a member of your clinical team. You will subsequently be asked if you wish to resume your involvement in the study or withdraw.

Will the information I provide be confidential?

Your RMO and GP will be informed, if you decide to take part in the research. All information you provide will be allocated a number to anonymise it and make it non-identifiable. Information will be kept as confidential, unless you tell Marlene Macinnes something that makes her concerned for you or someone else's safety. In those circumstances she would contact your RMO and clinical team.

What will happen to the results of the research study?

The results will be submitted as a thesis to the University of Edinburgh. A shorter report will also be written for the State Hospital, the Orchard Clinic and Rowanbank Clinic. There may be an option of submitting the results for publication following this.

Who is organising the research and why?

This study has been organised by Marlene Macinnes, Specialist Psychological Practitioner to fulfil part of her doctorate in Clinical Psychology. The State Hospital's Board for Scotland has funded it.

Who has reviewed the study?

The State Hospital's Ethics Committee has reviewed the study proposal. A favourable ethical opinion has been obtained from South East Scotland REC 2. NHS management approval has also been obtained.

If you have any further questions about the study please contact

Marlene Macinnes
Specialist Psychological Practitioner
The State Hospital
Carstairs
Lanark
ML11 8RP
Telephone 01555 840293

If you would like to discuss this research with someone independent of the study please contact

Dr Gary Macpherson
Lead Consultant Forensic Clinical Psychologist
The State Hospital
Carstairs
Lanark
ML11 8RP

Telephone 01555 840293

If you wish to make a complaint about the study please contact

Risk Department

The State Hospital

Carstairs

Lanark

ML11 8RP

Telephone 01555 840293

Thank you for taking the time reading this information sheet.

PARTICIPANT INFORMATION SHEET

Examining the influence of childhood trauma on psychopathology, risk and engagement in psychological therapy, in forensic mental health.

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish. Contact us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

The purpose of the study

This research is examining whether traumatic experiences forensic patients have in their childhood has a negative effect on their mental health, risk and ability to engage in psychological therapy. Participants do not need to have had a history of child abuse to take part. It is hoped that the results can be used to develop better psychological treatment for patients.

Why have I been invited to take part?

You participated in some research with Jessica Austin, Specialist Psychological Practitioner last year and we would like to ask you for some more information. Your Responsible Medical Officer, (RMO) has consented to you being contacted.

Do I have to take part?

No, it is up to you to decide whether or not to take part. If you decide to take part you will be asked to sign a consent form. You are free to withdraw from the study at any time, without giving a reason and without your medical care being affected in any way.

What do I have to do, if I take part?

If you are interested in taking part, your psychologist will ask Marlene Macinnes, Specialist Psychological Practitioner, to meet with you at a convenient time to answer any further

questions you may have. If you decide to participate, she will ask you to complete a consent form and you will be given a copy to keep.

You will then be asked to complete two questionnaires

- Relationship Style Questionnaire (RSQ)
- Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM)

This will take approximately 10 minutes.

The consent form asks permission for Marlene Macinnes to find out your scores from The Childhood Trauma Questionnaire (CTQ) you completed for Jessica Austin last year, and more information about your mental health and risk from your psychology file. It also asks your permission to access any information about your risk held on the hospital database. Marlene Macinnes will finally ask your psychologist to complete a short questionnaire called the Service Engagement Scale (SES), about your participation in therapy.

What are the possible benefits of taking part?

The main benefit in taking part is that your experience will help to increase our understanding of the effects of childhood trauma on mental health, risk and ability to engage in psychological therapy. It is hoped that the results can be used to develop better psychological treatment for patients.

What are the potential disadvantages and risks of taking part?

Short questionnaires were selected to keep the burden of completing them to a minimum. In the event of you becoming distressed, the interview will be immediately stopped. Should you require support, you will have direct access to a member of your clinical team. You will subsequently be asked if you wish to resume your involvement in the study or withdraw.

Will the information I provide be confidential?

Your RMO and GP will be informed if you decide to take part in the research. All information you provide will be allocated a number to anonymise it and make it non-identifiable. Information will be kept as confidential, unless you tell Marlene Macinnes something that makes her concerned for you or someone else's safety. In those circumstances she would contact your RMO and clinical team.

What will happen to the results of the research study?

The results will be submitted as a thesis to the University of Edinburgh. A shorter report will also be written for the State Hospital, the Orchard Clinic and Rowanbank Clinic. There may be an option of submitting the results for publication following this.

Who is organising the research and why?

This study has been organised by Marlene Macinnes, Specialist Psychological Practitioner to fulfil part of her doctorate in Clinical Psychology. The State Hospital's Board for Scotland has funded it.

Who has reviewed the study?

The State Hospital's Ethics Committee has reviewed the study proposal. A favourable ethical opinion has been obtained from South East Scotland REC 2. NHS management approval has also been obtained.

If you have any further questions about the study please contact

Marlene Macinnes
Specialist Psychological Practitioner
The State Hospital
Carstairs
Lanark
ML11 8RP
Telephone 01555 840293

If you would like to discuss this study with someone independent of the study please contact

Dr Gary Macpherson
Lead Consultant Forensic Clinical Psychologist
The State Hospital
Carstairs
Lanark
ML11 8RP
Telephone 01555 840293

If you wish to make a complaint about the study please contact

Risk Department

The State Hospital

Carstairs

Lanark

ML11 8RP

Telephone 01555 840293

Thank you for taking the time reading this information sheet.

APPENDIX 4 -The Childhood Trauma Questionnaire (CTQ)

Removed for copyright reasons.

APPENDIX 5 - Relationship Scales Questionnaire (RSQ)

Removed for copyright reasons.

**APPENDIX 6 -The Clinical Outcomes in Routine Evaluation - Outcome Measure
(CORE - OM)**

Removed for copyright reasons.

APPENDIX 7 - The Historical Clinical Risk -20 (HCR-20)

Removed for copyright reasons.

APPENDIX 8 - Service Engagement Scale (SES).

Removed for copyright reasons.

APPENDIX 9 - Consent Form

Version 2 27.06.12

CONSENT FORM

Examining the influence of childhood trauma on psychopathology, risk and engagement in psychological therapy, in forensic mental health.

- I confirm that I have read and understood the Participant Information Sheet for the above study and have had an opportunity to ask questions about it. ☐
- I understand that participation in this research is voluntary. I am free to withdraw from the study at any time, without giving a reason and without my total clinical care being affected in any way. ☐
- I consent to information relevant to the research, being accessed from my psychology file and the hospital database. ☐
- I understand that the information I provide will be allocated a number to anonymise it and make it non-identifiable. That information will be kept confidential, unless I tell the researcher something that makes her concerned for my or someone else's safety. I understand in those circumstances that she will contact my Responsible Medical Officer, RMO and clinical team. ☐
- I understand that my General Practitioner (GP) will be informed of my participation in the research. ☐
- I understand that relevant sections of my medical notes and data collected during the study, may be looked at by the study researchers and individuals from the sponsor, regulatory authorities or from the NHS organisation, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. ☐

- I agree to take part in the above research study.



Name of participant

Date

Signature

Name of researcher

Date

Signature

Participant copy
RMO copy
Psychology file copy
Researcher copy
GP copy

APPENDIX 10 - Letter to GP

Version 2 22.10.12

The State Hospital
Carstairs
Lanark
ML11 8RP

General Practitioner
(insert address)

(insert date)

Dear Doctor

Re:

I am writing to advise you that your patient has participated in research that I am conducting across the State Hospital, Orchard Clinic and Rowanbank Clinic entitled:

‘Examining the influence of childhood trauma on psychopathology, risk and engagement in psychological therapy, in forensic mental health.’

The research is considering whether traumatic experiences forensic patients have in their childhood, has a negative effect on their mental health, risk and ability to engage in psychological therapy. It is hoped that the results can be used to develop better psychological treatment for patients.

This study intends to follow up research conducted by Jessica Austin, Trainee Clinical Psychologist in 2011. Patients who agree to participate in the research will be asked to complete

- The Childhood Trauma Questionnaire (CTQ)
- Relationship Style Questionnaire (RSQ)
- Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM)

this takes approximately 15 to 20 minutes.

If they participated in Jessica Austin's research, previous CTQ scores will be used. The consent form asks participants' permission to find out more information about their mental health and risk from their psychology file. It also asks permission to access any information about their risk held on the hospital database. Participants' psychologists will also be asked to complete a short questionnaire called the Service Engagement Scale (SES), about their patient's engagement in therapy.

If you require any more information about this research, please do not hesitate to contact me, or my clinical supervisor **Dr Gary Macpherson, Lead Consultant Forensic Clinical Psychologist at the State Hospital.**

Yours sincerely,

Marlene Macinnes
Specialist Psychological Practitioner

CHAPTER 3 - JOURNAL ARTICLE

The journal article contained in this chapter reports the findings of a study investigating the influence of childhood trauma on psychopathology, risk and engagement in therapy in a forensic population. The article was written for submission to the *Journal of Forensic Psychiatry and Psychology*, therefore formatting and references follow the American Psychological Association (APA) style. This journal's instructions for authors are provided in Appendix 1.

Journal Article Abstract

Examining the influence of childhood trauma on psychopathology, risk and engagement in therapy, in forensic mental health.

Background: Previous research has indicated an association between childhood trauma and insecure attachment with psychopathology, risk and engagement in therapy. This study aimed to investigate the relationships between these factors in a forensic population.

Method: Sixty-four participants from three forensic hospitals completed the Childhood Trauma Questionnaire (Bernstein & Fink, 1998), the Relationship Scales Questionnaire (Griffin & Bartholomew, 1994) and the Clinical Outcomes in Routine Evaluation - Outcome Measure (Evans *et al.*, 2002). Overall scores from participants' Historical Clinical Risk Management Violence Risk Assessment Scheme (Webster *et al.*, 1995) were calculated. Staff evaluated participants' engagement in therapy via completion of the Service Engagement Scale (Tait *et al.*, 2002).

Results and conclusions: This retrospective study found childhood trauma and insecure attachment significantly predicted psychopathology and risk. No associations with engagement were found, but methodological reasons for this outcome were acknowledged. Recommendations were made to routinely assess for childhood trauma and consider attachment patterns in forensic settings.

Keywords: childhood trauma, engagement, insecure attachment, psychopathology, risk.

Introduction

Reported prevalence rates of childhood trauma in the forensic population are thought to be high. Tripodi and Pettus-Davis (2013) identified that 64.2% of their participants from a female prison had experienced childhood sexual abuse (CSA) and/or childhood physical abuse (CPA). In a mixed forensic sample Spitzer, Chevalier, Gillner, Freyberger and Barnow (2006) found a rate of 69% CPA, 69% emotional abuse, 47% CSA and 41% neglect.

Childhood trauma and psychopathology

There have been a number of large prospective studies conducted recently, regarding the influence of child abuse on psychopathology. In a World Health Organisation (WHO) survey of 51,945 patients, childhood adversities were associated with 29.8% of mental disorders (Kessler *et al.*, 2010). Bebbington *et al.*'s (2011) analyses from a national psychiatric survey found that CSA was strongly related to psychosis. A further large-scale study by Bentall, Wickham, Shevlin and Varese (2012) identified a relationship between CSA and hallucinations. A recent meta-analysis has also established a strong association between childhood trauma and a greater risk of psychosis (Varese *et al.*, 2012). There has also been evidence of a relationship between the severity of trauma and the chronicity of symptoms, which is referred to in the literature as a 'dose effect' (Anda *et al.*, 2006; Shevlin, Dorahy & Adamson 2007; Shevlin, Houston, Dorahy & Adamson, 2008; Bentall *et al.*, 2012).

Bowlby's (1980) theory of attachment is the universal human need to form close emotional bonds to achieve healthy development. Individuals form what Bowlby called 'internal working models' of their early relationships, which influence

future interpersonal and psychological functioning. A child's development can be severely affected if the perpetrator of abuse is a parent or carer. It has been established that insecure attachment is a significant risk factor for mental illness (Van Bakermans-Kranenberg & Ijzendoorn, 2009). A number of studies have also found an association between insecure attachment and psychosis (Pickering, Simpson & Bentall, 2008; MacBeth, Schwannauer & Gumley, 2008).

The association between child abuse and certain types of personality disorders has been acknowledged (Spataro, Mullen, Burgess, Wells, & Moss, 2004). There is evidence of a relationship between emotional abuse and neglect and a range of personality disorders, particularly borderline personality disorder (BPD) (Bierer, Yehuda & Scneider, 2003). High rates of childhood sexual abuse have also been reported in adults with BPD (McLean & Gallop, 2003). Kingdom *et al.* (2010) identified those with a diagnosis of BPD, including those with co-morbid schizophrenia reported more childhood trauma, particularly emotional abuse. Similarly, people with antisocial personality disorder (ASPD) have been frequently found to have a history of severe child abuse and neglect (Davidson, 2008).

Research has revealed that an insecure attachment pattern is also a risk factor for personality disorders (Fonagy & Bateman, 2007). In a sample of participants with BPD, the majority was classified as having a preoccupied attachment (Fonagy *et al.*, 1996). Brown (2009) examined the relationship between attachment patterns and subsequent child abuse. He suggested that it is the combination of dysfunctional attachment and childhood trauma that can lead to personality disorder.

Individuals rarely fit neatly into one diagnostic category (Beck, Freeman & Davis, 2004) and there is often a high rate of co-morbidity associated with mood disorders, substance misuse, post-traumatic stress disorder (PTSD) and personality disorders (Davidson, 2008). This is particularly so for forensic patients. Read *et al.* (2004) suggested that rather than separating childhood trauma sequelae into separate diagnoses such as PTSD, dissociative disorder, schizophrenia and borderline personality disorder, they should instead be seen as overlapping symptoms of abuse. Morrison, Frame and Larkin (2003) similarly believe that PTSD and psychosis are part of a spectrum of responses to child abuse and it has been proposed that symptoms are categorised as complex traumatic stress disorders instead (Courtois & Ford, 2009).

Childhood trauma and offending

Cumulative exposure to childhood trauma is associated with an increased risk of involvement in the criminal justice system (Rosenberg, Lu, Meuser, Jankowski & Cournos, 2007). In addition, victims of different types of childhood abuse and neglect have been found to be at a greater risk of conduct disorder and adult criminal behaviour (Avery, Hutchinson & Whitaker, 2002).

Bateman and Fonagy (2004) discuss a link between insecure attachment and trauma, affecting the development of personality and increasing the risk of externalizing distress, which may include offending. Insecure attachment is thought to have a detrimental effect on a child's development of theory of mind, that is their ability to empathise and understand the mental states of others (Fonagy & Target, 1997; MacBeth, Gumley, Schwannauer & Fisher, 2013). Failure to relate to others in this way is thought to contribute to violent behaviour

(Adshead, 2002). Risk of violence is higher if a person does not feel a sense of connection with others (Schoe, 2003) and De Zulueta (1993) has referred to violence as attachment gone wrong.

Childhood Trauma and Engagement

Andrews and Bonta (2007) suggest that the overall treatment goals in forensic settings are to reduce symptoms of psychopathology and address criminogenic needs such as substance abuse. Engaging patients in therapy can also be seen as part of risk management (Daffern, Mayer & Martin, 2004) and there is evidence that increased therapeutic engagement is significantly correlated with clinically significant reductions in risk (Long, Dolley & Hollin, 2011).

Low engagement is widespread in the treatment of offenders (McMurrin, 2002). Furthermore, patients who have had dysfunctional family relationships may have significant problems with trust and be sensitive to rejection. The perspective they have on offending might also be at odds with the medico-legal setting they are in (Keller, Feeny & Zoellner, 2010).

Tait, Birchwood and Trower (2004) found insecure attachment was related with poor engagement with psychiatric services, and suggest it is necessary to consider the attachment style of patients in clinical practice. However the approach for working with individuals with a dismissing attachment style, who are hostile or very defended from distress, is quite different to a preoccupied style, where an individual can be very demanding of support (Stirpe, Abracen, Stermac, & Wilson, 2006).

Rationale and aims of the current study

Thomas, Harty and Parrot (2005) acknowledged the need to better understand the relationship between childhood trauma, psychopathology and offending behaviour and how this affects risk and treatment outcomes. Austin (2011) identified a high level of childhood trauma in her exploratory research in secure hospitals in Scotland, which required further investigation. Therefore, the aim of this study was to examine whether child abuse and insecure attachment patterns were significant predictors of psychopathology, risk of violence, hospital violence and engagement in psychological therapy in a forensic population.

Hypotheses

Based on the existing research findings in this area, the following one-tailed hypotheses were proposed:

- Childhood trauma and insecure attachment are associated with increased psychopathology, and a history of childhood trauma and insecure attachment will predict increased psychopathology.
- Childhood trauma and insecure attachment are associated with an increased risk of violence, and a history of childhood trauma and insecure attachment will predict an increased risk of violence.
- Childhood trauma and insecure attachment are associated with problems with engagement in psychological therapies, and childhood trauma and insecure attachment will predict problems with engagement in psychological therapies.

Methods

Design and setting

This retrospective study took place in a high secure forensic psychiatric hospital for Scotland and Northern Ireland and two medium secure forensic hospitals in central Scotland. All patients resident within these units are detained under the Mental Health (Care and Treatment) (Scotland) Act 2003 or the Criminal Procedure (Scotland) Act 1995 because they had been deemed to have a mental disorder and pose a risk of harm to others. Patients are admitted from court, prison or another psychiatric hospital. While most patients had either been convicted of a violent criminal offence or acquitted by reason of a mental disorder, a minority have been detained because of significant concerns about their risk to others, in less secure settings.

Power Calculation

A priori power calculations using G*Power software (Faul, Erdfelder, Lang & Buchner, 2007), for a multiple regression analysis with an alpha level of .05, four predictor variables, and an anticipated effect size of 0.3 with a statistical power level of 0.80 indicated a minimum sample size of 45 participants.

Participants

The inclusion criteria for the study was that participants were aged 18 or over, did not have a learning disability and had capacity to provide consent. Some patients who met these criteria were excluded from the study by clinicians for other reasons, e.g. poor mental health, about to be discharged. From a total population

of 264 patients, 94 individuals were identified from the high secure forensic hospital, 15 from one medium secure unit and 18 from the other medium secure unit. Of the 127 patients meeting the inclusion criteria, 63 declined to participate. Therefore, the total sample consisted of 64 patients (62 males, 2 females) and represented a response rate of 48.1%.

The mean age of participants was 42.3 years ($SD = 11.9$; median = 44), ranging from 19 to 67 years. The majority of participants had at least one conviction prior to their index offence (the crime that led to their detention at a secure hospital or prison). Fifty-four participants (84.4%) had committed previous offences, with a mean number of 15.9 offences per patient ($SD = 21.2$; median = 8) ranging from one to 100.

The mean number of years since participants' first contact with mental health services was 21.3 years ($SD = 12.3$; median = 20) ranging from two to 50 years. The mean number of years participants had spent in a secure hospital was 11.2 years ($SD = 10.8$; median = 8), ranging from one to 46 years. The mean number of verbally or physically violent incidents reported in hospital per participant was 16 ($SD = 49.3$; median = 4), ranging from zero to 372. Further demographic information is provided in Table 1 below.

Table 1: Demographic characteristics

		Number (% total sample)
Gender	Male	62 (96.9%)
	Female	2 (3.1%)
Ethnicity	Caucasian	62 (96.9%)
	Other Ethnicity	2 (3.1%)
Primary Diagnosis	Schizophrenia Spectrum Disorder	59 (92.2%)
	Dissocial Personality Disorder	5 (7.8%)
Secondary Diagnosis	None	35 (54.7%)
	Dissocial Personality Disorder	15 (23.4%)
	Other Personality Disorder	13 (20.3%)
	Autistic Spectrum Disorder	1 (1.6%)
Substance Misuse	Yes	48 (75%)
	No	16 (25%)
Index Offence	Murder	27 (42.2%)
	Attempted Murder	9 (14.1%)
	Assault to Severe Injury	7 (10.9%)
	Assault	6 (9.4%)
	Sexual Assault	10 (15.6%)
	Criminal Damage	3 (4.7%)
	Challenging Behaviour (No Conviction)	2 (3.1%)
Attachment	Dismissing	29 (45.3%)
	Secure	17 (26.6%)
	Fearful	14 (21.9%)
	Preoccupied	4 (6.3%)

Measures

Childhood Trauma Questionnaire (CTQ)

The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) is a 28-item self-report retrospective measure of abuse and neglect. Five categories of childhood maltreatment are assessed: *emotional abuse*, *physical abuse*, *sexual abuse*, *emotional neglect* and *physical neglect*, with five items included in each. Respondents are asked to rate statements about their experience of childhood on a five-point Likert scale (1 = *Never True*, 2 = *Rarely True*, 3 = *Sometimes True*, 4 = *Often True* and 5 = *Very Often True*). Positively worded questions are reverse

scored. Items are then summed to produce overall scores, which can then be categorised into the following score ranges: *none or minimal*, *low to moderate*, *moderate to severe* and *severe to extreme*. As the CTQ is designed to assess the severity of childhood trauma a person has experienced, it is also possible to establish an overall dose effect, the more trauma the person has experienced the higher the total score. The CTQ also has three items to identify false-negative reports of child abuse, which form a *minimisation/denial scale*. The CTQ has been validated with both clinical and non-clinical population and has demonstrated good internal consistency (Chronbach's alpha = 0.66 to 0.92). Test-retest results range from $r = 0.79$ to 0.81 (Bernstein & Fink, 1998).

Relationship Scales Questionnaire (RSQ)

The Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994) is a 30-item self-report measure that has been designed to yield a range of different attachment category scores. Respondents are asked to rate statements regarding their feelings about close relationships on a five-point Likert scale ($1 = \text{Not at all like me}$, $3 = \text{Somewhat like me}$ and $5 = \text{Very much like me}$). The RSQ has shown good discriminant and convergent validity across its underlying attachment dimensions (Griffin & Bartholomew, 1994). The RSQ has been validated with clinical and non-clinical population (Perrier, Boucher, Etchegary, Sadava & Molner, 2010; Hansen, Waage, Eid, Johnson & Hart 2011) and has demonstrated good internal consistency (Chronbach's alpha= 0.68 to 0.77).

The current study used the four attachment categories devised by Bartholomew and Horowitz (1991) that is: *secure*, *fearful*, *preoccupied* and *dismissing*. The category within which the participant achieved the highest score was deemed to

be their predominant attachment type. Participants' dimensional scores of each attachment category were also used in analyses.

Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM)

The Clinical Outcomes in Routine Evaluation - Outcome Measure (CORE-OM; Evans *et al.*, 2002), is a 34-item self-report questionnaire that is widely used in psychological therapy contexts (Office of Health Economics, 2008). The instrument measures difficulties in the domains of wellbeing, psychological symptoms, functioning and risk. Each item is scored on a five-point Likert scale (*0 = Not at all, 1 = Only occasionally, 2 = Sometimes, 3 = Often, and 4 = Most or all of the time*). A mean score for each category and for the overall total can be calculated.

The CORE-OM has demonstrated good internal reliability and test re-test validity is high ($r = 0.75-0.95$; Evans, *et al.*, 2002). Most research using the CORE-OM has involved community samples, however it has been found to be valid for people with BPD (Whewell & Bonnano, 2000) and also in forensic settings (McCloskey, 2001). A recent study found that the CORE-OM was acceptable and potentially useful in secure hospitals, with good internal validity (Chronbach's $\alpha = 0.87$; Perry, Barkam & Evans, 2013).

Historical Clinical Risk Management Violence Risk Assessment Scheme (HCR-20)

The Historical Clinical Risk Management Violence Risk Assessment Scheme (HCR-20) (Webster, Douglas, Eaves & Hart, 1995) is a structured professional judgment tool, designed to predict and manage violence. It is divided into 10 items related to historical risk factors which are largely static (e.g. *previous violence, early*

maladjustment), five dynamic and potentially changeable risk factors related to current clinical functioning (e.g. *lack of insight, impulsivity*), and five dynamic items related to future risk (e.g. *lack of personal support, exposure to destabilisers*).

Clinically, risk must be assessed using illustrative scenarios, which are then used to plan interventions. However, it is possible to measure risk for research purposes using an actuarial 3-point scale (*0 = not present, 1 = partially or possibility present and 2 = present*) for each item, with a maximum total score of between 0 and 40. Although individual items are not equally weighted in clinical practice, researchers have interpreted greater scores to represent greater potential risk (Macpherson & Kevan, 2004). If there is insufficient information for completion of an HCR-20 item (e.g. a psychopathy assessment is outstanding), it can be omitted and pro-rated by taking the average score of the subscale (Gray, Taylor & Snowden, 2008). The HCR-20 has been validated across forensic populations and the mean effect size has been found to range from moderate to large in size ($r \cong 0.3-0.5$), (Douglas, Yeomans & Boer, 2005).

Service Engagement Scale (SES)

The Service Engagement Scale (SES; Tait, Birchwood & Trower 2002) was developed to measure the engagement of patients with schizophrenia with services in the community. It is a 16-item questionnaire, which examines the categories of availability, collaboration, help-seeking and treatment adherence. Each item is scored on a four-point Likert Scale (0 = Not at all or rarely, 1 = sometimes, 2 = often, 3 = most of the time). Positively worded questions are reverse scored. Subscale scores are added together and the higher the score, the

lower the engagement. The SES has good internal consistency (Chronbach's alpha = 0.76 - 0.90) and good to excellent test - retest reliability ($r = 0.80 - 0.97$; Tait et al., 2002).

Procedure

Participants completed the three self-report questionnaires CTQ, RSQ and CORE-OM. Previous CTQ scores were obtained for the 13 patients who had participated in the Austin (2011) study, so that they did not have to provide this information again. The high secure forensic psychiatric hospital had adopted the CORE-OM as a routine outcome measure since February 2012 and data relating to the first available completed CORE-OM was also obtained for a subsample of participants ($n = 27$) and a mean CORE-OM score was calculated for these participants using the first and last CORE-OM completed.

Consent was gained from participants to access their clinical files in order to obtain background demographic information about their diagnosis, substance misuse history and their HCR-20 data. In this study, each participant's clinical team had compiled the HCR-20 assessments used, which are updated annually. The earliest dated back to 2005, when the HCR-20 was first introduced to the high secure forensic psychiatric hospital. A mean score of the first available and last HCR-20 was calculated, where available. Three participants did not have a completed risk assessment and five participants had an alternative risk assessment to the HCR-20, which led to a subsample of 56 participants with data for this measure. Of these, 46 participants had more than one completed HCR-20.

Consent was gained to obtain the number of verbal and physically aggressive episodes recorded for each participant on the hospitals' incident reporting system (DATIX). Participants also agreed to a member of the Psychology Service completing the SES regarding their level of engagement in psychological therapy. Only scores from the subtotals availability, collaboration and help seeking were used in analysis as the treatment adherence subscale concerns compliance with medication.

RESULTS

Summary statistics relating to the variables investigated (experience of childhood trauma, psychopathology, risk of violence, hospital violence and engagement with therapy) are summarised in Table 2. The Shapiro-Wilks test of normality revealed that the distribution of data relating to the number of DATIX incidents in hospital ($W = .70$, $df = 23$, $p < .001$), the CTQ ($W = .76$, $df = 23$, $p < .001$), and SES ($W = .91$, $df = 23$, $p < .05$), differed significantly from a normal distribution. Data for the remaining variables did not differ significantly from a normal distribution.

Table 2: Summary statistics for all variables measured

Measure	Mean	Median	SD	Range
CTQ Emotional Abuse	9.98	7.50	5.61	19.00
CTQ Physical Abuse	9.22	7.00	5.33	20.00
CTQ Sexual Abuse	9.31	5.00	6.39	20.00
CTQ Emotional Neglect	11.39	10.00	5.95	20.00
CTQ Physical Neglect	9.06	8.00	4.54	19.00
CTQ Total Score	48.97	40.50	22.58	80.00
First CORE Wellbeing	1.21	1.25	1.02	3.25
First CORE Problems	1.1	1.08	0.97	3.58
First CORE Function	1.18	1.17	0.78	2.50
First CORE Risk	0.28	0.00	0.55	1.83
First CORE Total	1.00	1.00	0.75	2.38
Last CORE Wellbeing	1.00	1.00	0.80	3.25
Last CORE Problems	0.91	0.75	0.79	3.58
Last CORE Function	1.10	1.08	0.67	3.33
Last CORE Risk	0.15	0.00	0.36	1.67
Last CORE Total	0.84	0.69	0.60	2.91
Mean of CORE Total	0.92	0.73	0.65	2.65
First HCR-20 Total	27.30	28.00	6.59	27.34
Last HCR20	26.00	26.72	6.72	30.00
Mean HCR-20	26.31	27.63	6.45	27.84
DATIX	16.00	4.00	49.29	372.00
SES Availability	1.31	0.00	1.70	5.00
SES Collaboration	3.58	3.00	2.16	9.00
SES Help Seeking	5.16	5.00	2.70	12.00
SES Total - Treatment	10.05	9.50	5.30	25.00

Eleven participants (17.2%) reported no childhood trauma. Eight participants (12.5%) experienced one category of abuse, 16 participants (25%) two categories, ten participants (15.6%) three categories, seven participants (10.9%) four categories and 12 participants (18.8%) all five categories of child abuse. The prevalence and range of each category of childhood trauma, with the overall total is reported in Table 2 below.

Table 3: Prevalence of childhood abuse

Type of Abuse	None-minimal n (%)	Low - moderate n (%)	Moderate -severe n (%)	Severe - extreme n (%)	Total Sample n (%)
Emotional Abuse	33 (51.6%)	14 (21.9%)	6 (9.4%)	11 (17.2%)	31 (48.4%)
Physical Abuse	36 (56.3%)	6 (9.4%)	8 (12.5%)	14 (21.9%)	28 (43.7%)
Sexual Abuse	34 (53.1%)	6 (9.4%)	9 (14.1%)	15 (23.4%)	30 (46.9%)
Emotional Neglect	31 (48.4%)	17 (26.6%)	4 (6.3%)	12 (18.8%)	33 (51.6%)
Physical Neglect	28 (43.8%)	18 (28.1%)	4 (6.3%)	14 (21.9%)	36 (56.2%)

From this sample there was a reported rate of 48.4% emotional abuse, 43.7% physical abuse, 46.9% sexual abuse, 51.6% emotional neglect and 56.2% physical neglect, when calculated from the *low to moderate* scale cut-off.

Bernstein and Fink (1998) have stated that any score from one to three on the CTQ *minimisation/denial scale* suggests the possibility of underreporting of abuse (false negative). Forty-one participants (64.1%) obtained a score of zero. Ten participants (15.6%) obtained a score of one. Five participants (7.8%) obtained a score of two and eight participants (12.5%) obtained a score of three. Spearman's correlational analysis identified a significant negative correlation between the CTQ minimisation/denial scores the CTQ Total scores ($r = -.54$, $p < .001$). This means an increase in the CTQ *minimisation/denial scale* is related to a decrease in the CTQ scores, which suggests that the frequency of trauma in the sample may be higher than reported.

Bivariate correlational analyses were used to explore relationships among variables, summarised in Table 3.

Table 4: Spearman's rho correlations between key variables

	DATIX	Years	Last HCR-20	Mean HCR- 20	CTQ Total	Last CORE	Mean CORE	SES	Dismissing	Fearful	Preocc
DATIX		r= .39** p= .00	r= .43** p= .00	r= .64** p= .00	r= .26* p= .02	r= .17 p= .08	r= .32 p= .06	r= .22* p= .04	r= -.07 p= .30	r= .08 p= .27	r= .34** p= .00
Years	r= .39** p= .00		r= .31** p= .01	r= .45** p= .00	r= .16 p= .11	r= -.01 p= .48	r= -.13 p= .25	r= .41** p= .00	r= .20 p= .07	r= .18 p= .44	r= -.02 p= .44
Last HCR-20	r= .43** p= .00	r= .31** p= .01		r= .92** p= .00	r= .23* p= .04	r= .33** p= .01	r= .42* p= .02	r= .57** p= .00	r= .26* p= .03	r= .28* p= .02	r= .10 p= .24
Mean HCR-20	R=.67** p= .00	r= .45** p= .00	r= .92** p= .00		r= .28* p= .03	r= .24* p= .05	r= .33 p= .06	r= .60** p= .00	r= .16 p= .15	r= .15 p= .15	r= .01 p= .33
CTQ Total	r= .26* p= .02	r= .16 p= .11	r= .23* p= .04	r= .28* p= .03		r= .43** p= .00	r= .71** p= .00	r= -.00 p= .50	r= .14 p= .14	r= .24* p= .03	r= -.05 p= .36
Last CORE	r= .17 p= .08	r= -.01 p= .48	r= .33** p= .01	r= .24 p= .05	r= .43** p= .00		r= .85** p= .00	r= .06 p= .31	r= .13 p= .15	r= .39** p= .00	r= -.01 p= .46
Mean CORE	r= .32 p= .06	r= -.133 p= .26	r= .42* p= .02	r= .33 p= .06	r= .71** p= .00	r= .85** p= .00		r= -.08 p= .35	r= .30 p= .07	r= .40* p= .02	r= -.17 p= .20
SES - TA	r= .22* p= .04	r= .41** p= .00	r= .57** p= .00	r= .60** p= .00	r= .00 p= .50	r= .06 p= .31	r= -.08 p= .35		r= .12 p= .17	r= .13 p= .15	r= -.03 p= .40
Dismissing	r= -.07 p= .30	r= .18 p= .08	r= .26* p= .03	r= .16 p= .15	r= .14 p= .14	r= .13 p= .15	r= .29 p= .07	r= .12 p= .17		r= .55** p= .00	r= .02 p= .43
Fearful	r= .08 p= .27	r= .06 p= .32	r= .28* p= .02	r= .16 p= .15	r= .24* p= .02	r= .39** p= .00	r= .40* p= .02	r= .13 p= .15	r= .55** p= .00		r= .33** p= .00
Preocc	r= .34** p= .00	r= -.02 p= .44	r= .10 p= .24	r= .07 p= .33	r= -.05 p= .36	r= -.01 p= .47	r= -.17 p= .20	r= -.03 p= .40	r= .02 p= .43	r= .33** p= .00	

* significant at p < .05 level **significant at p < 0.01 level

Hypothesis 1: Childhood trauma and insecure attachment are associated with increased psychopathology.

In terms of the first hypothesis, increased psychopathology (as measured by the last CORE-OM) was significantly associated with childhood trauma (as measured by the CTQ) ($r = .43$, $p < .001$) and fearful attachment (as measured by the RSQ) was significantly associated with increased psychopathology, ($r = .39$, $p < .001$).

In order to investigate the direction of these relationships in more detail, a stepwise multiple regression analysis was undertaken (Table 4). Predictor variables included the number of years since the participant's first contact with mental health services, the CTQ total score, and the dimensional scores for the fearful RSQ category. The criterion variable in this case was psychopathology, represented by the last CORE-OM score.

Table 5: Multiple regression analysis to predict psychopathology (last CORE-OM)

	Beta	Std. Error	Std. Beta	t	Sig.
Step 1					
Constant	0.83	0.16		5.24	0.00
Years Mental Health	0.00	0.01	0.03	0.22	0.83
Step 2					
Constant	0.35	0.20		1.72	0.10
Years Mental Health	-0.00	0.01	-0.04	-0.33	0.74
CTQ Total	0.01	0.00	0.42	3.43	0.00
Step 3					
Constant	-0.09	0.23		-0.41	0.68
Years Mental Health	-0.00	0.01	-0.05	-0.44	0.66
CTQ Total	0.01	0.00	0.31	2.68	0.01
Fearful Attachment	0.20	0.06	0.37	3.20	0.00

$R^2 = -0.02$ for step 1; $\Delta R^2 = 0.14$ for step 2 ($p < 0.01$); $\Delta R^2 = 0.26$ for step 3 ($p < 0.01$).

Data relating to the number of years since participants' first contact with mental health services were entered at Step 1. Step 2 added the CTQ total score data. Step 3 added fearful RSQ data. The regression analysis aimed to determine whether these variables could predict psychopathology and were entered this way to ensure that the smallest possible set of predictor variables were retained in the final model (Brace, Kemp & Snelgar, 2009).

Childhood trauma (as measured by the total CTQ score) significantly predicted psychopathology (as measured by the last CORE-OM), std. $B = .31$, $t(2,58) = 5.91$, $p = .01$. Fearful attachment (as measure by the RSQ) was also a significantly predictor of psychopathology std. $B = .37$, $t(3,57) = 8.00$, $p = 0.00$. Model 1 accounted for less than one per cent of the variance in psychopathology, adjusted $R^2 = -0.02$, $F(1,59) = 0.05$, $p = 0.83$. The addition of CTQ data to Model 2 resulted in an additional 14 per cent of the variance being explained ($\Delta R^2 = 0.14$) $F(1,58) = 11.76$, $p < 0.01$. The final Model 3, which included fearful attachment data accounted for 26 per cent of the variance ($\Delta R^2 = 0.26$) $F(1,57) = 10.27$ $p < 0.01$.

Hypothesis 2: Childhood trauma and insecure attachment is associated with an increased risk of violence.

For the second hypothesis, increased risk of violence (as measured by the last HCR-20) was significantly associated number of years from first contact with mental health services ($r = .31$, $p < .05$), with childhood trauma ($r = .23$, $p < .05$), fearful attachment ($r = .28$, $p < .05$) and dismissing attachment ($r = .26$, $p < .05$). Increased risk of violence (as measured by the mean of the HCR-20 scores) was

also significantly associated with number of years from first contact with mental health services ($r = .45$, $p < .01$) and childhood trauma ($r = .28$, $p < .05$).

Hospital violence (as measured by the number of violent incidents reported on DATIX) was significantly associated with number of years since first contact with mental health services ($r = .39$, $p < .01$), with childhood trauma ($r = .26$, $p < .05$), and preoccupied attachment ($r = .34$, $p < .01$).

In order to investigate this relationship in more detail, three stepwise multiple regression analyses were undertaken. In the first of these regression analyses (Table 5), predictor variables included the number of years since the participants' first contact with mental health services, the CTQ total score and dimensional scores for fearful and dismissing attachment RSQ categories. The criterion variable in this case was risk represented by the last HCR-20 score.

Table 6: Multiple regression analysis to predict risk of violence (using Last HCR-20)

	Beta	Std. Error	Std. Beta	t	Sig.
Step 1					
Constant	21.06	1.80		11.68	0.00
Years Mental Health	0.24	0.08	0.40	3.09	0.00
Step 2					
Constant	14.08	3.84		3.67	0.00
Years Mental Health	0.24	0.08	0.40	3.14	0.00
Fearful	1.9	0.98	0.30	1.95	0.06
Dismissing	0.51	1.32	0.06	0.38	0.70

$R^2 = 0.14$ for step 1; $\Delta R^2 = 0.22$ for step 2 ($p < 0.05$).

Data relating to the number of years since participants' first contact with mental health services were entered at Step 1. Step 2 added the CTQ total score data,

although this was not retained in the model. Step 3 added fearful and dismissing RSQ data.

The number of years participants since participants' first contact with mental health services significantly predicted risk of violence (last HCR-20), std. $B = .40$, $t(1,51) = 9.52$, $p < 0.01$. Fearful attachment significantly predicted of risk of violence, std. $B = .30$, $t(3,49) = 5.98$, $p < 0.01$. Model 1 accounted for 14 per cent of the variance in risk of violence adjusted $R^2 = 0.14$, $F(1,51) = 9.52$, $p < 0.01$. The addition of CTQ total score to Model 2 did not account for any additional variance and was not retained. The addition of fearful attachment data to Model 3 resulted in an additional 22 per cent of the variance being explained ($\Delta R^2 = 0.22$) $F(2,49) = 3.71$, $p < 0.05$.

In the second of these regression analyses (Table 6), predictor variables included the number of years since the participant's first contact with mental health services and the CTQ total score. The criterion variable in this case was risk represented by the mean HCR-20 score.

Table 7: Multiple regression analysis to predict risk of violence (using Mean HCR-20)

	Beta	Std. Error	Std. Beta	t	Sig.
Step 1					
Constant	20.28	1.82		11.14	0.00
Years Mental Health	0.28	0.08	0.50	3.71	0.00
Step 2					
Constant	16.24	2.55		6.37	0.00
Years Mental Health	0.28	0.07	0.50	3.9	0.00
CTQ Total	0.09	0.04	0.28	2.17	0.04

$R^2 = 0.23$ for step 1; $\Delta R^2 = 0.29$ for step 2 ($p < 0.05$).

The number of years participants' first contact with mental health services significantly predicted risk of violence (mean HCR-20), std. $\beta = .50$, $t(1,42) = 13.76$, $p < 0.01$. Childhood trauma significantly predicted the risk of violence, std. $\beta = .28$, $t(2,41) = 9.85$, $p < 0.01$. Model 1 accounted for 23 per cent of the variance in risk of violence, adjusted $R^2 = 0.23$, $F(1,42) = 13.76$, $p < 0.01$. The addition of CTQ data to Model 2 resulted in an additional 29 per cent of the variance being explained ($\Delta R^2 = 0.29$) $F(1,41) = 3.71$, $p < 0.05$.

In the third of these regression analyses (Table 7), predictor variables included the number of years since participants' first contact with mental health services, the CTQ total score, and mean scores for the preoccupied RSQ category. The criterion variable for this regression analysis was the number of incidents of hospital violence recorded on DATIX.

Table 8: Multiple regression analysis to predict risk of violence (DATIX)

	Beta	Std. Error	Std. Beta	t	Sig.
Step 1					
Constant	-16.27	12.11		-1.34	0.18
Years Mental Health	1.55	0.49	0.38	3.15	0.00
Step 2					
Constant	-75.3	23.17		-3.25	0.00
Years Mental Health	1.64	0.47	0.40	3.53	0.00
Preoccupied	23.83	8.14	0.33	2.93	0.01

$R^2 = 0.13$ for step 1; $\Delta R^2 = 0.23$ for step 2 ($p < 0.01$).

Data relating to the number of years since participants' first contact with mental health services were entered at Step 1. Step 2 added the CTQ total score data, although this was not retained in the model. Step 3 added preoccupied RSQ data.

The number of years since participants' first contact with mental health services significantly predicted hospital violence (DATIX), std. $\beta = .40$, $t(1,59) = 9.90$, $p < 0.01$. Preoccupied attachment was a significant predictor of hospital violence, std. $\beta = .33$, $t(2,58) = 9.87$, $p < 0.01$. Model 1 accounted for 13 per cent of the variance in hospital violence, adjusted $R^2 = 0.13$, $F(1,59) = 9.90$, $p < 0.01$. The addition of CTQ total score to Model 2 did not account for any additional variance and was not retained. The addition of the preoccupied RSQ data to Model 3 resulted in an additional 23 per cent of the variance being explained ($\Delta R^2 = 0.23$) $F(158) = 8.57$, $p < 0.01$.

Hypothesis 3: Childhood trauma and insecure attachment are associated with problems with engagement in psychological therapies.

With regard to the third hypothesis, no statistically significant relationships emerged between engagement and childhood trauma and engagement and insecure attachment. Therefore, no further inferential analyses were indicated for this hypothesis.

A significant relationship was found between engagement and number of years since participants' first contact with mental health services ($r = .41$, $p < .001$) risk of violence as measured by the last HCR-20 ($r = .57$, $p < .001$) and the mean HCR-20 ($r = .60$, $p < .001$) and hospital violence as measured by DATIX ($r = .22$, $p < .04$).

Discussion

The primary diagnosis of participants in this sample is similar to a recent prospective study completed at a high secure hospital in Scotland, schizophrenia

spectrum disorder (92.2% and 92.7%) and personality disorder (7.8% and 7.3%) (Vojt, Thomson & Marshall, 2013). The rates of a history of substance misuse in this study were however higher than those previously reported (75% and 64.2%).

The overall rates of childhood trauma across the five CTQ categories was similar to Austin (2011), in the categories of emotional abuse (48.5% and 46.2%), physical abuse (43.8% and 48%), emotional neglect (51.7% and 57.4%) and physical neglect (56.3% and 61%), but rates of sexual abuse were found to be higher (46.9% to 29.5%). It is important to acknowledge however that 13 of the participants CTQ scores came from her sample.

Almost half of the sample (45.3%) had a dismissing attachment pattern, characterised by individuals who view close relationships as harmful. This is not surprising as dismissing attachment is associated with criminal behaviour and violence (Sroufe, 2005; Stirpe *et al.* 2006). That the rates of secure attachment (26.6%) exceeded fearful (21.9%) and preoccupied (6.3%), was more unexpected. Interestingly Adshead (2002) proposed that for some patients a forensic hospital might be their first enduring attachment and become a secure base. This seems possible if we consider that some participants have been in hospital for up to 46 years, although it conflicts with the view that attachment patterns are created in infancy and remain stable over the lifespan, (Fonagy, 1999).

In terms of hypothesis one, childhood trauma and insecure attachment significantly predicted psychopathology as measured by the CORE-OM, which is in keeping with the literature (Van Bakerman-Kranenberg & Ijzendoorn; Kessler *et al.* 2010; Severi Martins, de Carvalho Tofoli, Von Werne Baes & Jurena, 2011).

However, one very surprising finding was that the mean of the CORE-OM scores was below the clinical cut off of 1.19 for men and 1.29 for women, (Barkham, Gilbert, Connell, Marshall & Twigg, 2005), despite 43.7% of the sample having a comorbid diagnosis of schizophrenia spectrum disorder and personality disorder. The fact that clinical staff excluded patients from the study whose mental health was unstable, could explain this outcome. This low level of distress in the sample also suggests that the quality of care across the hospitals is good.

In terms of hypothesis two, childhood trauma significantly predicted risk, but this relationship was only evident with the mean of the HCR-20 scores, that is a measure of risk over time. This is in keeping with research regarding an association between childhood trauma and criminal behaviour (Avery *et al.*, 2002; Rosenberg *et al.*, 2007). Insecure attachment, specifically fearful attachment also significantly predicted risk as measured by the last HCR-20, as anticipated (Adshead, 2002; Schore, 2003).

The number of years since participants' first contact with mental health services also significantly predicted risk, as measured by the HCR-20 and violent incidents recorded on DATIX. This was an expected outcome, as forensic patients are required to be detained in a secure hospital, as long as their risk of violence remains high (NHS Scotland, 2009).

A preoccupied attachment pattern was also found to significantly predict risk, as measured by the number of violent incidents recorded on DATIX. Interestingly Dozier and Lee (1995) found that participants with a preoccupied attachment style reported more distress than others. Similarly Fonagy *et al.* (1996) found that

preoccupied attachment was most frequently associated with BPD, which is related to externalising emotions. It seems likely therefore, that participants with this pattern of behaviour would have higher rates of verbal and physical aggression in hospital.

In terms of hypothesis three neither childhood trauma, nor insecure attachment predicted problems with engagement, as measured by the SES, despite evidence of this in the literature (Tait *et al.*, 2004; Keller *et al.*, 2010). If we examine the SES scores in more detail however, we can see that engagement did not appear to be a significant problem for this sample. The mean score was 10.05 (SD = 5.3) out of a possible score of 36. It is difficult to conduct research on engagement, as individuals who have problems with this would not participate. A qualitative study with staff in forensic settings may yield more meaningful results.

Correlational analyses identified a significant relationship between engagement and the number of years from participants' first contact with mental health services, and risk as measured by the HCR-20 and DATIX. It suggests that the longer participants remain in hospital and the greater the risk they present, the more problems they have with engagement in therapy.

Clinical Implications

The high rate of childhood trauma identified in this study, which predicted both psychopathology and risk, underlines the importance of routine enquiry about child abuse, as part of a mental health assessment (Read, Fink, Rudegeair, Felitti, & Whitfield, 2008) to inform trauma focused formulations and interventions (Courtois & Ford, 2009). While this is standard practice in secure hospitals and

indeed one of the risk factors in the HCR-20 is 'early maladjustment', it is important to consider how much attention is given to this. Clinicians may ask about incidence of sexual abuse for example, but fail to consider a history of emotional abuse or neglect in depth.

Insecure attachment was also found to predict psychopathology and risk in this study, which suggests that it would also be useful to routinely assess forensic patients' attachment patterns, to enable more sensitive therapeutic interventions and manage risk. Indeed a systematic review by Gumley, Taylor, Schwannauer and MacBeth (2013) highlights the importance of assessing attachment, in order to understand patients' emotional regulation style and facilitate engagement and recovery.

Limitations

The use of retrospective measures of childhood trauma in this study is a limitation. Briere (1992) acknowledged the time that has passed since the abuse occurred or the perceived stigma about disclosing could also affect the accuracy of reporting. The fact that 35.9% of participants obtained between one and three in the CTQ minimisation score, and that it was negatively correlated with increasing rates of trauma, suggests that this may have occurred in this sample.

This study also used a relatively narrow definition of childhood trauma. It has been acknowledged that there are also other stressors that occur in childhood, such as death of a parent, divorce or parental mental illness or substance abuse, that could be a factor in future psychopathology (Severi Martins, de Carvalho Tofoli, Von Werne Baes, & Juruena, 2011).

The use of the CORE-OM as a measure of psychopathology is a further limitation, as it makes it difficult to compare this study with research on specific disorders such as psychosis, BPD or PTSD. It has already been acknowledged that patients in secure hospitals have complex needs, and often have co-morbid symptoms, which are not easily captured in one measure. A pan -theoretical measure of distress was chosen for this reason (Perry *et al.* 2013). It may have been possible to increase the measures to assess symptoms of psychosis, depression and PTSD for example, but this would have greatly increased the burden on patients and is likely to have reduced the number recruited.

The use of the RSQ as a self-report measure of attachment may be another limitation. Many of the participants showed elements of more than one attachment pattern, and individual variability was lost with the selection of one category. Gumley *et al.* (2013) also caution against self-report measures of attachment as it can lead to biased reporting e.g. individuals with dismissing attachment can describe themselves as autonomously secure. A narrative assessment such as the Adult Attachment Interview (AAI) (George, Kaplan & Main, 1987) would have yielded a more sophisticated assessment, but would again have taken much longer to administer and may have been a barrier to recruitment.

It would have been interesting to consider the effect of the five separate CTQ categories in this study, but the small sample size limited statistical analyses, and the results in general need to be interpreted with caution for this reason. All 127 patients who were identified for the study were approached and the 48.1% response rate is to be expected within a forensic setting. Care must be taken not

to generalise results from this exploratory study, and comparison should be limited to groups with similar demographics and abuse histories. Confidentiality prevents analysis of the population who declined to participate and it is safe to assume that sample differed from patients that were excluded for clinical reasons on rates of psychopathology, risk and engagement.

Conclusion

This retrospective study found that childhood trauma and insecure attachment significantly predicted psychopathology and risk. No associations with engagement in therapy were found, but methodological reasons for this outcome were discussed. Recommendations were made to routinely assess childhood trauma and attachment patterns in forensic settings. Limitations regarding the small exploratory nature of the research were acknowledged.

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Appendix 1: The Journal of Forensic Psychiatry and Psychology's Instructions for Authors

The Journal of Forensic Psychiatry and Psychology considers all manuscripts on the strict condition that they have been submitted only to *The Journal of Forensic Psychiatry and Psychology*, that they have not been published already, nor are they under consideration for publication or in press elsewhere.

Contributions to *The Journal of Forensic Psychiatry and Psychology* must report original research and will be subjected to review by referees at the discretion of the Editorial Office.

The submission should include for each author, name, degrees or other qualifications, position or affiliation, the department where the work was done and an address for correspondence with postcode.

Manuscripts should be compiled in the following order: title page; abstract; keywords; main text; acknowledgments; appendixes (as appropriate); references; table(s) with caption(s) (on individual pages); figure caption(s) (as a list).

All the authors of a paper should include their full names, affiliations, postal addresses, telephone numbers and email addresses on the cover page of the manuscript. One author should be identified as the corresponding author. The affiliations of all named co-authors should be the affiliation where the research was conducted.

For all manuscripts non-discriminatory language is mandatory. Sexist or racist terms should not be used.

The manuscript

Submissions should be in English, double-spaced with wide margins. Pages must be numbered.

Articles should normally be no more than 5,000 words in length (excluding references) and be preceded by an abstract of no more than 150 words.

Review papers (e.g. systematic reviews, meta-analyses, law reviews) and some empirical studies may require greater length and the Editors are happy to receive longer papers. We encourage brevity in reporting research. Brief reports should be no more than 2,000 words in length, including references.

Normally, there should be a maximum of one table.

The abstract should be followed by three to six keywords.

Any notes or footnotes, tables and figures should not be inserted in main text of the manuscript but should be on separate pages. Tables and figures should be numbered consecutively in Arabic numerals with a descriptive caption. The desired position in the text for each table and figure should be indicated in the margin of the manuscript. A word count should be provided.

Style guidelines

Description of the Journal's article style

American Psychological Association (APA) referencing style should be used

Any consistent spelling style is acceptable. Use single quotation marks with double within if needed.

For direct quotations of 40 words or more, which will be printed as prose extracts, page numbers are required. Always use the minimum number of figures in page numbers, dates etc., e.g. pp. 24-4, 105-6 (but using 112-13 for 'teen numbers) and 1968-9.

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